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Hypnotic Deafness
and the Compliance Hypothesis:
A Blind Real-Simulator Design

Richard L. Glatt
Carleton University

Running Head: Compliance

Proposed thesis submitted in partial fulfillment of the requirements of
the Masters of Arts - Psychology.

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The undersigned recommend to the Faculty of Graduate Studies
and Research acceptance of the thesis

HYPNOTIC DEAFNESS AND THE COMPLIANCE HYPOTHESIS:

A BLIND REAL-SIMULATOR DESIGN

submitted by Richard L. Glatt

in partial fulfilment of the requirements
for the degree of Master of Arts

A handwritten signature in dark ink, appearing to read "M. L. Glatt", is written over a horizontal line.

Chair, Department of Psychology

A handwritten signature in dark ink, appearing to read "Neil Spence", is written over a horizontal line.

Thesis Supervisor

Carleton University

May 25, 1992

Dedication

To my wife, Cheryl, for her continued love and support

To my parents, Harvey and Louise, and my sisters, Margot and Nancy for their much appreciated encouragement and concern.

To my advisor, Nick Spanos, for sharing his enthusiasm with me

To my dog and companion, Chelsey, for greeting me at the door everyday with her tail wagging and affection in her eyes.

And finally, to all of the people who agreed to participate in my study without whom this would not have been possible

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Abstract

Sixty-four Carleton University undergraduates, 37 women and 27 men participated in an experiment on auditory perception. Ss were randomly assigned to one of two groups: "Reals" (42 highly hypnotizable Ss) and Simulators (11 low and 11 highly hypnotizable Ss). Using the Auditory Compliance Paradigm, Ss were exposed to a 30sec tone on each of 3 trials. Trial 1 was a baseline and trial 2 was preceded by a hypnotic deafness suggestion. 31 "reals" and 11 simulators received an instruction designed to induce (reduced loudness ratings) biased reporting following trial 3. The 22 remaining Ss comprised the control condition. As expected, control Ss in both the "real" and simulating conditions displayed a symmetrical "V" response pattern, reporting equally high scores on trials 1 and 3 and a significantly reduced loudness rating on trial 2. Simulating and "real" Ss administered the compliance inducement also reported less loudness on trial 2 than on baseline. In addition, these Ss demonstrated response bias by reporting less loudness on trial 3 than on baseline. Overall, simulators reported less loudness than "reals". More importantly, however, compliance instructions did not interact with simulation instructions. These findings support the claim that Ss perceive the trial 3 demands to be more ambiguous than those received on trial 2 and the hypothesis that hypnotic deafness reflects a reporting bias as opposed to a genuine change in perceptual experience. Ss were also administered 4 individual difference measures (absorption, compliance, conformity, and cognitive rating strategy) in an attempt to predict response to the compliance inducement. Only one of the conformity subscales predicted response bias. Overall then, the results provide support for a cognitive social-psychological interpretation of hypnotic responding.

Hypnotic Deafness and the Compliance Hypothesis:

A Blind Real-Simulator Design

Since its inception as a research area, people have questioned whether the phenomena elicited by hypnotic suggestions are genuine, exaggerated or faked. In fact, debate among theorists regarding the mechanisms underlying hypnotic phenomena have been far from dispassionate (Turk & Rudy, 1986). The seemingly dramatic phenomena associated with the topic hypnosis include reports of deafness; blindness; analgesia; hallucinations; and numerous other unusual suggestion-induced alterations in subjective experience.

Because the verbal reports given in response to these hypnotic suggestions are voluntary (Kirsch, et al., 1989), it is especially important to determine the veracity or authenticity of such reports. In addition, the fact that the hypnotic situation creates strong demands for the production of "appropriate" overt responses to suggestions (Spanos, 1986) suggests that subjects' reports may reflect compliance aimed at pleasing the experimenter. Accordingly, the present study is designed to compare "real" and simulating subjects in a paradigm developed by Spanos et al.

(1990a) to examine the extent to which hypnotic deafness reflects reporting bias as opposed to genuine changes in perceptual experience

Historically, hypnosis has been associated with the occurrence of a variety of supernatural and amazing feats. As far back as the late eighteenth century, Franz Anton Mesmer, a Viennese physician, made "passes" over patients with a wand, in order to treat physical illness. Mesmer and others were of the view that magnetic fluids permeated the universe and that an imbalance of these fluids within the body produced disease. He believed that he could rid patients of their ills by transmitting his own magnetic fluid, via the "passes" to his patients. The procedure he employed frequently led patients to experience "crises", which were described as involving "vomiting, expectoration, sweating, evacuation and various convulsive behaviours" (Darnton, 1968). Despite popular acceptance, Mesmer's claims did not go unchallenged by the scientific community. In 1784, the King of France appointed two independent commissions of inquiry into Mesmer's method of animal magnetism: the Academie des Sciences and the Societe Royale de Medicine, both of which operated under the direction of Benjamin Franklin. This event marked the

first application of the scientific method to phenomena now labelled as hypnosis. The experiments conducted by the commission failed to confirm Mesmer's "fluid hypothesis". Instead, the commission offered alternative explanations for these strange phenomena which emphasized imitation, faith, and imagination. Interestingly, these hypotheses greatly resemble many current explanations which account for hypnotic responding in terms of simulation, motivation, and absorption. Despite the results of the commission, the Mesmeric doctrine did not lose favour due to a number of anecdotal accounts which served as testimony to its "reality". The validity of Mesmerism was again challenged when the female hysterical patients who were the subjects of many of the Mesmeric demonstrations sometimes admitted to outright deception (Sheehan & Perry, 1976). These findings sparked the Academic de Medicine in Paris to set up two more commissions, which, after using numerous procedures and offering a variety of explanations, found no support for Mesmer's theory. Most importantly, these commissions raised the issue of whether hypnotic behaviour could be influenced by nonverbal cues in the situation. In addition, the commission reformulated the notion of "imagination" likening it to be-

haviour that is "not real", and thus fraudulent (Sheehan & Perry, 1976). Thus began the debate known as "fluid vs. fraud", or real versus not real (Podmore, 1909). Eventually the Mesmerists discovered that successful treatment could be achieved without resorting to convulsive crises or ritual banquets. About 1814, a Portuguese priest named Jose di Ana de developed induction procedures which predate those of today involving relaxation, drowsiness and sleep suggestions, as well as the procedure of comparing subjects of high and low susceptibility to hypnosis (Shor, 1979).

In 1843, a British surgeon named James Braid adopted similar methods including induction procedures which emphasized concentrated attention on a bright light. It was Braid who coined the term "hypnosis" and emphasized the importance of belief, expectancy, and attention as integral components to the effectiveness of hypnotic procedures. Two French investigators, Liebeault and Bernheim, who practised out of Nancy, expanded on Braid's ideas and viewed hypnosis as a form of behaviour continuous with normal waking, and as a function of suggestion and social influence. These notions have been refined into modern concepts like role taking,

that have been adopted by many current researchers (Sarbin, 1962).

Also in the late nineteenth century, other researchers, like French neurologist Jean-Martin Charcot, were assessing hypnotic behaviour in epileptics and patients suffering from hysterical conversion reactions. Unfortunately, Charcot relied on unsystematic and single-case, no control designs to conduct his research. While his patients were producing the expected "hypnotic" behaviours, in a seemingly natural fashion, he and his research team were not cognizant of the fact that the subjects were being surreptitiously cued by the experimenter as to how to respond. Despite these problems, which went undetected for some time, Charcot's theories were enthusiastically received by the Academie des Sciences, an organization that had rejected similar arguments just 97 years earlier under Benjamin Franklin.

A few decades later, in the 1920's, Clark Hull, riding the crest of the behaviourist movement, set out to design controlled experiments to evaluate the ontological status of hypnosis. His research differed in that he used "normal" rather than hysterical patients, un hypnotized control subjects or subjects as their own control, and the Null Hypothesis probability

model to enhance the confidence in his conclusions. Unfortunately, he ignored several important determinants of hypnotic responding (e.g. motivation) and may have limited his discoveries by using a methodology that excluded potentially valid self-report data. In addition, while Hull recognized the importance of controlling order effects, his use of waking subjects as a comparison group did not deal with the effects of either differential subject treatment by the experimenter (leading to the development of double- and triple-blind studies), or with the more complex "holding back" (or expectancy carry-over) effects where subjects alter their response on the first trial (usually the waking condition) in order to maximize their apparent capacities following hypnotic induction. Hull was responsible for initiating contemporary experimental research in hypnosis as an interpersonal or social-psychological phenomenon. His research, in turn, influenced others like White and Sarbin who, although not known for their experimental developments, did contribute an integral component to all current theories of hypnosis. In particular, these investigators emphasized the social nature of hypnotic responding and the active nature of the hypnotized subject. White (1941) described hypnotic

behaviour as "goal-directed striving, its most general goal being to behave like an hypnotized person as this is continuously described by the operator (E) and understood by the subject" (p. 503). Sarbin (1950) agreed but felt that White's theory was incomplete in that it failed to recognize subjects' preconceptions and self-perceptions. Sarbin focused on how role-taking was defined by the cues in the experimental setting, and delineated variables which lead to successful goal-directed striving in hypnotic situations, specifically, motivation, role perception, and a role-taking aptitude.

It was pioneering individuals like Hull, White, and Sarbin that laid the groundwork for the social-psychological model that exists today. This interpretation of hypnotic responding is also described as the "nonstate" or "cognitive social-psychological" view. Social psychological formulations hold that the positing of special processes to account for hypnotic behaviour is not only unnecessary, but also misleading. Researchers from this perspective see hypnotic behaviour as similar to other forms of social behaviour, both of which can be described as purposeful, goal-directed action or strategic social enactments (e.g. Spanos & Chaves, 1987).

According to this view the demands for behaving in accordance with the hypnotic role are contained in the wording of test suggestions as well as in other aspects of the hypnotic situation. In addition, responsive hypnotic subjects are conceptualized as active, cognizing, sentient individuals who are aware of subtle cues inherent in the social context and are motivated to define themselves in a manner consistent with their preconceptions of what constitutes "being hypnotized" (Orne, 1959; Spanos, 1982, 1986a). In other words, these investigators view the behaviour of highly suggestible hypnotic subjects as representing a contextually guided response strategy.

The alternative, "special-process" or "state-view", proposes that there is a hypothetical process within the subject that may be called trance, hypnotizability, or tranceability. The proponents of this position claim that it is this internal process that is critical in enabling subjects to respond to suggestions. Purportedly subjects differ in this capacity before they arrive at the hypnotic situation (e.g. Hilgard, 1977). While state theorists support the notion of an altered state of awareness, they differ in the extent to which they believe other factors within the subject or hyp.

notic setting influence the subject's behaviour (Coe, 1973). What they do agree on however, is that hypnotic experience or behaviour is qualitatively distinct from that associated with normal waking consciousness. In addition, some of these investigators (e.g. Hilgard, 1977) believe that voluntary control over suggested behaviour has been lost. This assumption has led special-process theorists to posit unusual mechanisms to explain how, in predisposed subjects, hypnotic induction rituals transform what would ordinarily be deliberate actions into suggestion-elicited responses that are no longer under conscious or voluntary control (Spanos, 1986a). In essence then, state theorists seek to identify a critical variable or process that differentiates hypnotic from waking experience, thus the label "special-process".

Responsiveness to test suggestions constitutes the major dependent variable in hypnosis research and is the criterion usually employed to determine the individual's "susceptibility" or "suggestibility" to hypnotic influence (Hilgard, 1965). While neither special-process theorists nor social-psychological researchers question the existence of these suggestion induced hypnotic phenomena, they differ in their explanation of the beha-

viour. The special-process account holds that hypnotic responding reflects a state or condition where suggestions (or cues) distort the perceptions and memories of an individual (Orne, 1979). Proponents of the social-psychological view are skeptical of the contention that suggestions lead to distorted perceptions or memories. Nonstate theorists contend instead, that a formal induction procedure is not necessary to elicit behaviour of this type but that it is uncommon to encounter such antics outside of the hypnotic situation (Naish, 1986). In addition, they claim that individuals who obtain high scores on tests of hypnotic susceptibility have a strong investment in presenting themselves in the experimental setting as "good" hypnotic subjects, if they believe that doing so will please the experimenter and make them appear in a favourable light. In contrast, subjects who believe that "becoming hypnotized" is a sign of weakness, would not be expected to respond to these same suggestions (Spanos, 1982).

While state theorists credit hypnotic procedures with providing access to unconscious or "hidden" facets of personality or mental functioning, "skeptical" researchers counter that subjects' reports or behaviour is

not necessarily what it might appear to be. In particular, in order to demonstrate the existence of some special state of consciousness, researchers must rely on subjects' verbal reports. Unfortunately, subjects' perceptual reports, given in response to suggestions, are often known to be inaccurate and to be easily biased by social demands. The subjective reports of hypnotized subjects, like their overt behaviours, may be strategically managed in order to maintain their self-presentations as "good" hypnotic subjects (Burgess, 1989). While it is known that experimental subjects or people in general are not always honest or dishonest, the key is to determine the conditions under which it is useful to treat such reports as accurate reflections of experience and the conditions under which it is not useful to do so. As Wagstaff (1982) has emphasized, there are many social circumstances in which dishonest subjective reports are routinely expected and proffered, and where honest reports would be considered tactless, cruel, socially inept, and so on (e.g. someone asking your opinion about their new hairstyle). While experiments typically contain implicit norms for honest reporting, there are situations where this is less likely to occur. For instance, if the experimental situation is struc-

tured so that honest reporting will result in discreditation or loss of face, then many subjects will indeed lie. A prime example is in studies on the simulation of hypnosis where instructions given by a legitimate authority can induce experimental subjects to ignore implicit demands for honest reporting. This is why it is often difficult to determine if subjects are reporting honestly and why research into the veracity of their reports is not only warranted but necessary (Spanos, 1986a). Therefore, the question at issue is the extent to which subjects' reports reflect actual changes in experience as opposed to reporting biases.

Hypnosis has traditionally been conceptualized as an event that happens to people rather than an enactment that people carry out (Spanos, 1982). In other words, it has been associated with the idea that highly hypnotizable subjects lose voluntary control over their responses and become incapable of resisting suggestions. It is these suggestions that encourage subjects to define their experiences as passive, automatic "happenings", rather than as occurrences or actions that are performed by them. Specifically, contextual demands in the hypnotic situation usually reinforce the idea that hypnotic behaviour is involuntary by requesting sub-

jects both to enact a response and to disavow responsibility for the enactment.

While special-process theorists have taken subjects at their word and have posited a wide variety of hypothetical psychological and physiological processes to explain the "hypnotized" person's purported transformation from an "active doer" to a passive observer of his own automatically occurring behaviour (Hilgard, 1979), the social-psychological perspective holds that hypnotic responding is similar to everyday responding which can be described as purposeful, goal-directed, and voluntary. These social-psychological theorists contend that even excellent hypnotic subjects retain control over their responses.

Participation in research can be viewed as problem-solving behaviour, and in order to be helpful (by being a "good" hypnotic subject - or to conform to the experimenter's hypothesis) the subject must first determine the nature of that hypothesis. Orne (1959) postulated that subjects will carry out most requests if they believe that, by obeying, their behaviour serves a legitimate purpose. To enable them to do this, Orne argued that the subject relies on what he called the "demand characteris-

tics" of the experimental setting. This concept refers to the sum total of cues available to the subject before the experiment, the instructions and covert communications during the experiment, and the nature of the procedure itself that communicates the experimental purpose and desired behaviour (Orne, 1979). Suggested behaviours, in turn, appear to be a function of the manner in which the situation is defined to the subject, the precise wording of the suggestions administered, the tone of voice in which the suggestions are presented, the subject's attitude toward the test situation, and his or her motivation to perform well on assigned tasks (Barber, 1969). Subjects' experiences in hypnotic situations are ambiguous and potentially classifiable in terms of numerous conceptual schemas other than hypnosis. Therefore, just as an outside observer needs contextual information to determine whether a subject is "really hypnotized" or is just relaxing, meditating, or introspecting, a subject needs access to the same contextual information in order to classify their own experiences "correctly" (Radtke & Spanos, 1981). It is this information or the experimental demands, which call for subjects to alter their interpretations and inevitably their subjective reports (Wagstaff, 1981).

Besides the expectations of the experimenter, there are also those of the experimental subject. The traditional view of subjects as a "tabula rasa" (or blank slate) is incorrect. Subjects enter settings with prior information and with an agenda. "Invariably, individuals in our culture are exposed to information about hypnosis long before they participate as subjects in a hypnosis experiment. They come to such an experiment with a variety of expectations concerning what the hypnotic experience is like, what hypnotizable subjects are like, and the degree to which they will be hypnotizable" (Radtke & Spanos, 1981) p. 368. The subject's attitudes and expectations then, can also determine the behavioural outcome. Both subjects' preconceptions and the structure of hypnotic situation (demand characteristics) converge to define how the subject will respond to hypnotic suggestions. While empirical research has determined that social pressure within the experimental setting can make subjects commit severe social improprieties (e.g. Milgram, 1963), make grossly erroneous statements (e.g. Asch, 1951), and numerous other manipulations, "establishing the importance of demand characteristics will, however, not be enough to rule out the existence of hypnosis as a "special state" "

(Rosenthal, 1986) p. 479. It is for this reason that social-psychological investigators suggest that behavioural and subjective responses to hypnotic suggestions are influenced, to a substantial degree by situational demands. Keep in mind, however, that a contextualist approach to hypnosis does not exclude a role for dispositional factors.

The extent to which the tendency to comply with experimental demands reflects a trait or stable personality disposition remains a controversial topic. In the present study this issue will be addressed by administering several questionnaires that purport to assess the tendency of subjects to modify their self-presentations in terms of conformity pressures. These measures include the Marlowe-Crowne (Social Desirability) Scale (M-C; 1960) and Lennox and Wolfe's (Concern for Social Appropriateness) Scales (CSA I & II; 1984). A number of investigators have suggested that the extent to which subjects experience suggested effects is related to their ability to become absorbed in imaginings. Tellegen and Atkinson (1974) have developed a trait index of absorption. One purpose of the present study will be to examine the relationship between trait absorption and hypnotic deafness reports, and to determine whether

absorption adds to the prediction of deafness reports above and beyond the effects of compliance.

Wagstaff (1981,1986) argued that much of the data in this area of research can be parsimoniously accounted for in terms of compliance. The term "compliance" is used to describe the overt behaviours a person enacts in response to what he or she believes are the expectations of others. Compliance only refers to outward actions and does not take into account the private convictions of the individual. Thus, a person exhibiting compliant behaviour may be acting in a certain manner even though that person does not really believe in what he or she is doing. To summarize, compliance can be defined as outward behaviour which conforms to the wishes or expectations of others but conflicts with the private convictions of the actor (Aronson, 1977; Kiesler & Kiesler 1970).

In summary, investigators in this area differ in the extent of credence they give to verbal reports. Some investigators are willing to accept subjects' verbal reports as accurate reflections of their subjective experience (Perry, Laurence, & Nadon, 1988; and Zamansky,1989) whereas others hypothesize that compliance is an integral aspect of hypnotic

responding (Wagstaff, 1986; Spanos, 1990). Three research strategies have been designed to address this controversy.

The first strategy involves examining the correspondence between verbal reports of subjective change and performance on some objective physiological index which is not under the subject's voluntary control. Some examples of these objective physiological indicators include heart rate, blood pressure, brain waves, and GSR (galvanic skin response). Generally, this line of research has indicated that the objective indexes are unaffected by suggestions, whereas verbal reports are greatly affected by them (e.g. Sutcliffe, 1961). Controversy surrounds the interpretation of these findings. Investigators who argue for the accuracy of verbal reports maintain that objective indexes are invalid as indicators of subjective experience (e.g. Hilgard, 1969). Meanwhile, those from the social psychological perspective maintain that a discrepancy between subjective and objective measures may reflect reporting bias (or compliant response style).

An alternative that does not depend on physiological responding involves attempting to alter demands so that subjects are willing to

report honestly on their experiences. A recent example of this kind of study involves highly susceptible subjects who are "hypnotized" and given a suggestion for blindness. They are presented with a piece of paper (8 1/2" X 11") which has a boldly printed "8" on it. When asked what they see, they comply with the initial blindness suggestion and report nothing. However, if they are repeatedly requested to report honestly, subjects admit to being able to see the number without any difficulty.

A similar scenario which is tied in more directly to the present study involves subjects being given suggestions for deafness. "Hypnotic" subjects given these suggestions, following a hypnotic induction procedure, typically report that they have experienced partial or complete deafness. Accordingly, it is important to determine if the subject's claim is an accurate account of their experience. In order to confirm the validity of these reports, one has several options. One clever means of checking the honesty of verbal reports of deafness, is to ask subjects following their claim of deafness, "Can you hear me?". If they answer "No, I can't hear you", as some do (Barber et al., 1974), then one might infer that subjects are being dishonest in reporting their experience. For those sub-

jects who do not reply and appear to be deaf, the hypnotist might state, "Now you can hear again", and since subjects typically respond normally following this suggestion reversal, then it seems that they likely could hear all along (Barber, 1979). This type of test would clearly suggest that, at least for hypnotic deafness, there may be a substantial degree of compliance.

To further evaluate the hypotheses of special process theorists, other studies used bilateral presentation (e.g. Spanos, Jones, & Malfara, 1982) and delayed auditory feedback (DAF) methods (Sutcliffe, 1961; Barber & Calverley, 1964; Scheibe, Gray & Keim 1968) to demonstrate that hypnotic subjects, despite testimony of suggestion-induced deafness, respond on objective tasks as do subjects with normal hearing. An obvious explanation for this behaviour is again that subjects who report deafness are lying or simply complying with experimental demands.

A second research strategy, which attempts to address the state-nonstate controversy, involves asking subjects post-experimentally about subjective experiences. In several of these studies fairly strong relationships were reported between subjects' overt responses and subjective

reports (e.g. Bowers, Laurence, & Hart, 1988). In other studies, subjects were easily induced to admit that their behavioural reports had been inaccurate or greatly exaggerated (Spanos, Flynn, & Gabora, 1989). Moreover, studies that find a large correspondence between behavioural responses and subjective reports are usually difficult to interpret. After all, subjects who present false subjective reports are probably unlikely to admit their compliance in response to experimental demands, as such a confession invariably involves a loss of face (Spanos & McLean, 1985). As pointed out by Orne (1979) post-experimental interviews are unlikely to produce confessions by dishonest subjects because the needs of both the subject and experimenter tend to mitigate against learning subjects' true perceptions and lead to what he has termed a "pact of ignorance".

A third research strategy was developed by Martin Orne in 1959.

Orne was concerned with the development of an appropriate control group in hypnosis research. Given that one of the characteristics of the "hypnotized" individual is a high motivation to play the role of a "hypnotized" person and carry out the requests of the hypnotist (White, 1941), it seemed essential to have an un hypnotized control group that would also be

highly motivated to please the hypnotist and to behave in a manner they believed characteristic of "hypnotized" subjects. This was confirmed by Barber (1969) who stated that unless subjects are adequately motivated in all conditions, observed differences in performance may be due to differences in motivation rather than to the presence or absence of the presumed "state of hypnotic trance". In fact, defining a situation as hypnosis is enough to motivate many subjects. In order to satisfy the requirements discussed above, Orne (1959) developed the technique of asking control subjects to simulate hypnosis.

"The procedure was initially conceptualized as providing a group of individuals who would share the role-playing aspects of hypnosis and the high level of motivation to behave like hypnotized subjects but would not share the experiences of real hypnosis. That is, they would not be able to experience as subjectively real the suggestions of the hypnotist. However, they would have as a basis for their simulation behavior the usual prior knowledge and expectations as well as all of the information provided by the experimental procedure and those subtle cues from the hypnotist that communicate his implicit wishes" p 527

Orne stated that the purpose of developing the simulator design was to help differentiate artifactual components or epiphenomena from those aspects of hypnosis that are truly intrinsic. Compliance and demand characteristics are commonly hypothesized artifacts (Balthazard & Woody, 1985). Over the past 32 years, this has been the focus of Orne's research proposing methods aimed at differentiating the effects of experimental demand characteristics from features thought to be essential to hypnosis. A finding of no difference between "reals" and simulators indicates that the particular procedure was of a kind which, if the subject had chosen to do so, could have been mimicked by an un hypnotized individual. "It could therefore not be considered as proof of hypnotic potentiation" (Orne, 1979, p. 539). Use of the simulator design made it clear that behavioural items that had been taken as self-evident proof of hypnosis, are well within the repertoire of un hypnotized individuals (Orne, 1979). In fact, Orne discovered shortly after including simulators in his research that many of the procedures he had casually accepted as useful tests to determine the subject's depth of response, and had assumed to be proof positive of the hypnotic response, failed to distinguish between groups.

While it is now well documented that hypnotic responses to test suggestions can easily be faked, that does not imply that hypnotic responses, in fact, are faked. Simulators and hypnotic subjects may behave similarly for different reasons and may have different subjective experiences despite the same overt behaviours.

In Orne's real-simulator designs, simulators differ from "hypnotic reals" in their initial hypnotizability and in the demand characteristics to which they are exposed. Hence, simulation was described by Orne (1969) as a quasi-control procedure. The social rules for behaving as a simulator involve not experiencing the suggested effects, pretending to have experienced the suggested effects, and carrying out the pretense for the sole and explicit purpose of fooling the hypnotist. In contrast, the social rules for the role of a "real" hypnotic subject involves trying to generate the subjective experiences called for by suggestions and reporting honestly and accurately about these experiences. Numerous studies have demonstrated that simulators overplay or exaggerate this role, by appearing to be even more suggestible than "highly hypnotizable" subjects. While these results do not rule out the possibility of simulation or compliance among

"reals", they also do not offer evidence which negates the existence of an "altered state of consciousness". What is clear is that any differences discovered in response to hypnotic test suggestions between simulators and hypnotic subjects could be due to differential demands, instructions, or treatment procedures received by the two groups.

Many state theorists have asserted that any similarity found in responding between "reals" and simulators can be explained by the fact that subjects who are pretending to be hypnotized are not really pretending but are, in fact, hypnotized (Sutcliffe, 1960). Likewise, Hilgard (1977) and others (e.g. Evans, 1968; Schneck, 1969; and Wachtel, 1969) have suggested that nonhypnotic (simulating or nonsimulating) subjects may inadvertently "slip into hypnosis" when given brief suggestions or instructions. According to this view, high suggestibles tend to "drift into hypnosis" even in the absence of formal hypnotic induction procedures. If this "inadvertent hypnosis" theory is taken seriously, then people are regularly hypnotizing others during such everyday social practices as conversation, reminiscing, teaching, doing psychotherapy, and so on (Spanos, 1986b).

To differentiate the blind real-simulator design from others, which

could include a variety of control groups, O'Connell, Shor, and Orne (1970) proposed the term "cryptosimulator". This is a design where the hypnotist is blind as to which subjects are simulating. Two experimenters are required so that the hypnotist-experimenter can remain absolutely blind as to which subjects have been asked to simulate and those who have not. This leads to the experimenter treating subjects in both groups in the same way, since he or she is unable to tell which subjects are "actually hypnotized".

Orne's real-cryptosimulator design has been especially useful in determining the extent to which overt behaviours exhibited by "hypnotic" subjects can be simulated - in particular, that subjects can easily fake hypnotic behaviours, if they choose to do so.

Spanos et al. (1990a), also recognized the importance of demand characteristics, contextual factors, and expectations as a determinant of behaviour in hypnotic settings, and developed a paradigm for assessing demand-induced reporting bias from actual changes in perceptual experience. Using this paradigm, subjects are exposed to a sensory stimulus [e.g. tactile (cold, pain) or auditory] on each of three trials, and then are

asked to rate the intensity of their experience ten seconds following each trial. The first is the baseline trial. The second trial is preceded by a hypnotic or nonhypnotic suggestion for experiential change (e.g. analgesia or deafness). After subjects give their experiential reports, the suggestion is cancelled and the stimulus is presented for the third time without subjects receiving any preliminary treatment instructions. Following the termination of this third stimulus trial, but before eliciting reports of their experience, half of the subjects are administered a brief statement designed to induce compliance (i.e. "you probably slipped into hypnosis on the last trial and for this reason felt very little pain/ heard very little of the tone"). The remaining subjects, controls, give their trial three intensity reports without receiving any compliance instruction. By doing this, the performance of subjects in both the experimental (compliance) and control (no compliance) conditions can be compared, yielding an index of the role of reporting bias in the experimental context. Because subjects were provided with the compliance instruction only after they had experienced the stimulus, any changes in subjects' trial three reports, as compared with their baseline reports, could not reflect actual changes

in subjective experience. Instead, these changes could only reflect an instruction-induced reporting bias. While the compliance paradigm elicits biased responding from some subjects, it is not intended to defame or cast doubt on the authenticity of all subjects' verbal reports in experimental settings. Instead, it seeks to assess which subjects are biasing their reports to the inducement and whether these are the same subjects who are responsive to hypnotic procedures.

Spanos et al.'s (1990) compliance paradigm improves upon the deficiencies of Orne's (1959) real-simulator design in several ways. First, it does not confound subject and treatment variables. Instead, both high and low hypnotizable subjects are included in the control procedure intended to elicit compliance. Secondly, in employing a repeated measures design, the power to detect small differences between performance on each trial is enhanced (individual differences variance is reduced). In addition, it allows the comparison of compliance between groups and of performance within subjects; that is, it allows one to evaluate whether the subjects who report high levels of experiential change in response to suggestions are the same subjects who report experiential change in

response to the compliance demand. This has the net effect of permitting much stronger inferences about the role of compliance. A fourth advantage of this new paradigm is that it satisfies the stringent requirements of a control procedure. Specifically, all factors other than the manipulated variable are held constant. Therefore, any differences found between groups on trial three must be the result of the manipulation following the experience.

For the present study, another modification has been made to the original Spanos et al. (1990) paradigm by including subjects who will be asked to simulate hypnosis during the experiment. Subjects will be randomly assigned to one of two groups; those who are asked to simulate hypnosis (simulators) and those who are not ("reals"). The latter group will contain only subjects who, on previous tests of hypnotic susceptibility, have rated as "highly hypnotizable". The rationale for this is quite simple. Low hypnotizable subjects, by definition, are unresponsive to hypnotic suggestions. Within simulation/real treatments, subjects will be randomly assigned to one of two conditions: compliance or no compliance. The compliance condition will include 42 subjects (37 high and 5

low hypnotizable). While all lows will be simulating hypnosis, 11 of the highs or "reals" will be doing the same. Therefore, the study will include 31 "reals", 6 high and 5 low simulators in the compliance condition along with 11 "reals", 5 high and 6 low simulators in the control condition.

Prior to being run through the experimental procedure, all subjects will be required to complete two trait measures of compliance and conformity and one inventory which assesses imaginative abilities. For the procedure, each of the two groups will be exposed to three trials of an auditory stimulus: a 30 second 60dB 1000Hz pure tone. Ten seconds after the termination of the tone, on each trial, subjects will be required to rate the loudness or intensity of the tone using a 21-point category rating scale with alternatives that range from no sound (scored 0) to intensely loud (scored 20). Following the baseline trial, subjects will be administered a five minute hypnotic induction procedure followed by a suggestion for deafness. After subjects give their loudness reports, which marks the end of the second trial, both the hypnosis and deafness suggestions will be cancelled. Prior to trial three, subjects will be told that this final trial will be "just like trial one". By the end of the auditory stimulus, both

groups (experimental and control) will have received exactly the same procedures. At this point, however, the groups are treated differently. Before giving their loudness reports, subjects in the experimental (compliance) group will be administered a brief statement designed to induce compliance (e.g. "You probably slipped into hypnosis on the last trial and therefore heard very little of the tone") during the ten second interval that follows the tone. The remaining subjects comprise the control group who will give their trial 3 sound reports without receiving any compliance instruction. Finally, all subjects will complete a questionnaire, which asks them retrospectively to rate the degree to which they employed a cognitive distraction strategy during this last trial.

During the trials phase of the design, all subjects will rate the loudness of the 30-second tone ten seconds after it ends. Based on the findings of the three previous studies (Spanos, Burgess, & Perlini, 1990; Burgess, 1990a; and Burgess, 1990b) all subjects are expected to report a relatively loud sound following the first (baseline) trial period. In addition, "reals" (highly hypnotizable "non simulators") given suggestions for deafness should report large diminutions in hearing on trial 2. Simula-

tors, likewise, will probably do the same but to a greater extent since they typically tend to over-report or exaggerate their claims. As for the third (compliance) trial, recall that the compliance instruction immediately follows the termination of the auditory stimulus. Consequently, these instructions cannot affect subjects' experiences of the trial 3 tone. In short, subjects' experiences on trials 1 and 3 should be identical. However, because subjects are exposed to compliance-inducing instructions, they may feel a need to alter their reports of that experience. Thus, any reduction in hearing reported on trial 3, as compared with trial 1 reports, will reflect a reporting bias rather than a perceptual change.

We anticipate that both "reals" and simulators will report significantly less loudness on trial 2 (following the deafness suggestion) and on trial 3 (following the compliance instruction) than on trial 1. However, given the tendency of simulators to "overplay" their role, we anticipate larger reductions in reported loudness on both trials 2 and 3 for simulators as opposed to "reals".

In order to determine whether the "reals" and simulators respond differently to the compliance-inducement, a 2 (Group: Real/Simulator) X

2 (Condition: Compliance/Control) X 3 (Trials) mixed ANOVA will be conducted on the raw auditory intensity reports of the three trials. It is here that the main effects, interactions, or simple main effects, if any, for groups, conditions, and/or trials will be identified. To determine the relationship between trial 2 and trial 3 reports, correlations will be calculated between these trials for both groups of subjects ("reals" and simulators) under both conditions (compliance and control).

Four individual difference measures will be studied in relation to the amount of reporting bias that subjects exhibit. These include an absorption (ABS) scale, and two trait (personality) indexes of compliance and conformity - namely, a social desirability (SD) scale, and two concern for social appropriateness (CSA) subscales (cross-situational variability and attention to social comparison). The fourth measure is a 9-point cognitive rating scale which asks subjects to rate the extent to which they employed a distraction strategy when exposed to the trial three auditory stimulus

Given that imaginative ability or the tendency to become absorbed in imaginings has often been found to correlate with a subject's pre-tested

level of hypnotizability (Tellegen & Atkinson, 1974), it is hypothesized that it may also relate to the extent to which subjects bias their responses. As well, since a relationship has previously been found between social desirability and response bias, it is expected that a similar association may be found for either of the CSA (conformity) subscales which measure similar characteristics. Finally, since the fourth measure (degree of cognitive strategy use) has previously been found to correspond with subjects' level of compliant responding, it is expected that a similar result will be obtained in this study. Specifically, it has been found that subjects who exhibited the most substantial trial 3 reporting bias in response to the compliance instruction, also tended to report higher cognitive strategy scores. Therefore, to determine the nature of these relationships, correlational analyses will be conducted between each of the four individual difference measures (ABS; SD; CSA I & II; and cognitive rating strategy scores) and trial three sound change reports in an attempt to predict response to the compliance inducement.

Method

Subjects

Sixty-four Carleton University undergraduates, twenty-seven men and thirty-seven women, volunteered to participate in an experiment on auditory perception. These subjects were selected based on previous testing where 53 obtained high scores (5-7) and 11 obtained low scores (0-2) on the objective dimension of the Carleton University Responsiveness to Suggestion Scale (CURSS; O; Spanos, Radtke, Hodgins, Stam, & Bertrand, 1983). All subjects received course credit for their participation in this study.

Apparatus

Measures

CURSS. The CURSS is a 7-item instrument and was employed to assess responsiveness to hypnotic suggestions. The items include two ideomotor suggestions (arm levitation and arms moving apart), two motor challenge suggestions (arm catalepsy and arm immobility), and three cognitive suggestions (auditory hallucination, visual hallucination, and amnesia for all preceding suggestions). Unlike most hypnotizability scales,

the CURSS can be administered to subjects individually or in group settings and requires subjects to score their own responses during the 45-minute administration. Self-scoring and experimenter-scoring of the CURSS: O dimension correlate highly ($r = .87$; Spanos, Cobb, & Gwynn, 1984). The CURSS provides three indices of response to hypnotic suggestions. However, the primary index, which is used by most hypnotic researchers and in this study as the index of response, is the degree of overt response to suggestions (CURSS: O), which ranges from no suggestions passed (scored 0) to all suggestions passed (scored 7).

Auditory Stimulus

Three identical repetitions of a 30-second, 60 decibel (dB), 1000 Hertz (Hz) pure tone were pre-recorded on a Fuji DR11 chrome dioxide tape and was played for subjects using a Phillips D8270 portable stereo, and Sony DR-Z7 headphones, which were connected with a Daveco AA-12 3.5mm to 1/4 inch jack.

Subjective Experience Rating Scales

To enable subjects to consistently rate the loudness of the tone, a

21-point Likert-type category rating scale (CRS) taken from (Spanos, Burgess, and Perlini, 1990), with scale alternatives ranging from "no sound " (0) to "intensely loud" (20), was presented to the subjects. Subjects were also required to rate the degree to which they employed cognitive strategies on the third trial on a 9-point scale with alternatives that ranged from "no strategy use" (scored 0) to "all the time" (scored 7).

Personality Questionnaires

Immediately before the testing procedure three personality measures were administered to each of the subjects. These included the ABS or absorption subscale of the Differential Personality Questionnaire (Tellegen, 1982), the Marlowe-Crowne Social Desirability Scale (M-C; Crowne & Marlowe, 1964), and the Concern for Social Appropriateness Scales (CSA; Lennox & Wolfe, 1984). The 34 item ABS also known as the Tellegen Absorption Subscale (See Appendix 1) assesses the degree of sustained, "noncritical" attention invested when engaged in such everyday activities as day dreaming, watching a movie, reading a novel, observing a sunset, etc.. The items were scored on a four-point scale where the value "1" represented never, "2" represented seldom, "3" represented sometimes,

and "4" represented very often. The Marlowe-Crowne Social Desirability Scale (See Appendix 2) contains 33 behaviours which are culturally sanctioned and have minimal pathological implications but which are improbable of occurrence, similar to the Lie scale of the MMPI (Meehl & Hathaway, 1946). The M-C scale is moderately correlated ($r = .54$) with the MMPI Lie scale. The scale is believed to assess the tendency of subjects to endorse socially desirable options and for the need of persons to obtain approval by responding in a culturally appropriate and acceptable manner. Of the 33 items, 18 are keyed true and 15 false, making an acquiescence or response set interpretation of scores highly improbable. The 20-item CSA scale (See Appendix 3) is comprised of seven items assessing cross-situational variability and thirteen items tapping attention to social comparison information. Taken together, these subscales assess long term tendencies to conform (i.e., to avoid behaviours that depart extremely from the quantitative norm of a reference group). Each item is scored from 0 (not at all) to 5 (extremely), with higher scores indicating a greater tendency to conform.

Testing Location

A small 6' X 10' (2m X 3m) testing room was used which was illuminated by a 60 watt desk lamp which was directed away from the subject. The room included two chairs and a large wooden desk. The experimenter sat facing the subject on the opposite side of the desk.

Procedure

Subjects were randomly assigned to one of two conditions: Reals (42 highly hypnotizable subjects) and Simulators (11 low hypnotizable and 11 highly hypnotizable subjects). Upon arrival at the laboratory, all subjects were greeted by one of two male assistant experimenters (AP or DE) who were aware of the subject's hypnotizability level. Subjects were then escorted to the experimental room where they were told that the session would involve the presentation of three auditory tones of short duration under various experimental conditions. This followed a brief rapport-building discussion. The initial instructions were intentionally brief and ambiguous to avoid the potential dangers of subjects developing a priori expectancies and strategies for responding. Subjects were advised that the primary experimenter was a competent and senior level graduate stu-

dent working on his thesis. The 42 high hypnotizable subjects assigned to the Real-Hypnosis condition were encouraged to discuss their previous hypnotic experiences (or any other experiences they chose) for about five minutes. The remaining 22 subjects (11 low and 11 high hypnotizable) were given instructions which comprised the Simulating condition (See Appendix 4).

The 11 low hypnotizable subjects were administered detailed simulating instructions adapted from Orne (1979; See Appendix 5). These subjects were informed that they were part of a special group whose task it was to fake being an excellent hypnotic subject for the sake of fooling the experimenter. Subjects were (accurately) informed and assured that the experimenter knew of the presence of both a real and a simulating group but was unaware of which subjects were assigned to what group. Subjects were told that previous research revealed that, though difficult, their task could be successfully managed through reliance on situational cues and experimenter expectations communicated in the instructions. Subjects were told that the experimenters in each session would stop the proceedings if faking was suspected and that in the absence of this suspi

cion, their performance reflects that of an excellent hypnotic subject. In no way, implicitly or explicitly, were simulators told how an excellent hypnotic subject would behave. These subjects were explicitly told to answer all verbal and written requests, as well as questionnaires in the manner in which an excellent hypnotic would respond. Moreover, they were told to not let themselves become hypnotized, engage in the suggested imagery, or feel any of the suggested effects. This performance was to continue throughout the session until its conclusion, at which point they would be brought back to the assistant. Only at this point, in the absence of the primary experimenter, would the subject stop faking and discuss their experiences during the simulation. Following these instructions, each subject was required to reiterate the nature of their simulating task in order to ensure that they clearly understood what was required from them.

To achieve uniform treatment of all simulating subjects, the 11 highly hypnotizable subjects assigned to the Simulating Condition received instructions identical in all but one respect with those given to the low hypnotizable group (See Appendix 6). These subjects were told

that highly hypnotizable subjects like themselves, by drawing on their past experiences and experimental cues, are capable of simulating hypnosis without becoming hypnotized; that their task was to simulate this role without becoming hypnotized, engaging in the suggested imagery, or feeling any of the suggested effects. In all other respects, these subjects were treated identically to the low hypnotizable simulators. Note that simulators were made aware of the presence of a Real Hypnosis treatment group; however, the Real Hypnosis group was not made aware of the presence of the Simulating group. On Orne's (1971) suggestion, this procedure serves to enhance motivation and task purpose for the simulators without invoking suspicions against genuine responding in "real" subjects.

Following the preliminary instructions and subjects' confirmations that they understood their task, the assistant, prior to leaving the room, asked them to complete the three personality inventories while awaiting the arrival of the primary experimenter, about five minutes later.

After entering the room the experimenter waited until the subject had finished the questionnaires before initiating a brief rapport-building discussion. Subjects were then handed an informal consent form to read

and sign (See Appendix 7) following any possible questions. The experimenter then explained the procedure to the subject (See Appendix 8) and paraphrased the instructions if there were any questions asked of him. Specifically, subjects were told that the session would involve three auditory trials requiring them to give loudness ratings after the termination of each tone. These ratings were to be given when the experimenter tapped the subject on the back of the hand, 10 seconds after stimulus termination, based on a previously explained rating scale (See Appendix 9). Subjects were then requested to close their eyes and were presented with the baseline auditory trial. Immediately following their loudness rating, subjects were administered a five minute hypnotic induction procedure modified from Barber (1969; See Appendix 10). This was followed by a two minute deafness suggestion taken directly from Spanos, Burgess and Perlini (1991; See Appendix 11). This suggestion informed subjects that hypnosis would enable them to use their imaginal and attentional processes to control sensory input, and that on the next trial they were to use these abilities to reduce the loudness of the tone. Following completion of trial two (after subjects had given their loudness ratings), the sugges-

tion for deafness was cancelled and subjects were "awakened" from hypnosis (See Appendix 12).

The third trial was preceded with the instruction that this last trial would be "just like trial one". In the 10 seconds after the presentation of the trial three tone but before they made their loudness ratings, half of the subjects in each group (21/42 high hypnotizable reals, 5/10 high hypnotizable simulators, and 6/12 low hypnotizable simulators) were randomly chosen to receive an instruction designed to induce compliance which explicitly defined what constituted an appropriate experience on the last trial. Specifically, subjects were told that:

People who are exposed to the tone more than once tend to drift back into hypnosis which greatly reduces the intensity of the sound that they hear. You probably drifted into hypnosis on this last trial and, for this reason, heard very little of the tone.

The remaining subjects did not receive this instruction during the 10-second interval between the end of trial three and the making of their intensity rating. This condition allowed assessment of any uninvited reporting biases or transfer of distraction strategies across trials. Follow

ing this final intensity rating, subjects were required to rate the degree to which they employed cognitive strategies during the third trial on a 9-point scale (See Appendix13). The scale alternatives ranged from (0) "not at all" to (9) "all the time". This final rating marked the end of the session at which time the experimenter thanked the subjects for their participation. The primary experimenter then left the room. Moments later, the assistant experimenter entered to conduct the post-experimental interview. This interview served to provide an opportunity for subjects to discuss their experiences, be debriefed about the purpose of the experiment (See Appendix 14) and to receive experimental credit.

Results

High and Low Hypnotizable Simulators Compared

A 2 X 2 X 3 (High/Low Simulation X Compliance/Control Condition X Trials) mixed analysis of variance (ANOVA) was conducted on loudness ratings to determine if high and low hypnotizable simulating subjects responded differently across trials. The summary table for this analysis is given in Table 1. None of the effects involving the High/Low Simulation variable attained significance. The three trial loudness rating means for these subjects can be seen in Table 2. Because high and low simulators failed to differ significantly in their loudness ratings they were combined into a single simulator group.

"Real" and Simulating Subjects Compared

A 2 X 2 X 3 ("Real"/Simulator X Compliance/Control X Trials) mixed ANOVA conducted on loudness ratings yielded a significant effect for the "Real"/Simulator variable [$F(1,60) = 7.65, p < .01$]. Overall, simulators, $M = 12.21$, $S.D. = 4.68$, reported less loudness than did "reals", $M = 14.68$, $S.D. = 3.45$. As shown in Table 3, simulators reported less loudness than "reals."

Table 1

Summary Table for 2 X 2 X 3 (High/Low Simulation X Compliance/Control X Trials) mixed Analysis of Variance (ANOVA) (N = 22)

Effect	F-ratio
Main Effects	
High/Low Simulation (H/L)	2.80
Control/Compliance (C/C)	1.62
Trials (T)	40.71***
Interactions	
H/L X T	1.04
C/C X T	4.89*
H/L X C/C X T	1.21

* $p < .05$, *** $p < .001$

Table 2

Mean Sound Intensity Ratings Across Trials for Low and High Hypnotizable
Simulating Subjects (N = 22)

Hypnotizability	n	Trial 1	Trial 2	Trial 3
High	11			
<u>M</u>		14.19	6.87	10.98
<u>SD</u>		3.71	4.51	4.02
Low	11			
<u>M</u>		16.01	10.20	15.38
<u>SD</u>		5.26	5.60	4.69

Table 3

Mean Sound Intensity Ratings Across Trials for Each Group

(Reals vs. Simulators)

Group	<u>n</u>	Trial 1	Trial 2	Trial 3
Reals	42			
<u>M</u>		16.73	11.88	15.42
<u>SD</u>		2.74	3.90	3.72
Simulators	22			
<u>M</u>		15.09	8.36	13.18
<u>SD</u>		4.36	5.03	4.65

Note: All within-column means differ at $\alpha = .05$.

on all three trials. The main effect for trials was also significant [$F(1,60) = 65.58, p < .001$] but was qualified by a significant Compliance/Control X Trials interaction [$F(1,60) = 4.14, p < .05$]. The summary table for this analysis is given in Table 4 and the means involved in the two-way interaction in Table 5. Simple main effect analyses on the Trials X Compliance/Control interaction indicated that control subjects' loudness ratings differed significantly across trials [$F(2,120) = 22.72, p < .001$]. Newman-Keuls post-hoc comparisons revealed that loudness ratings on trial 2 were significantly lower than on trial 1 or trial 3 and that loudness ratings on trial 1 and 3 failed to differ significantly. The simple main effect of Trials for the compliance subjects was also significant, [$F(2,120) = 53.04, p < .001$]. Newman-Keuls tests found that all three trial means differed significantly from one another with subjects reporting less loudness on trial 2 than on trial 1, and with trial 3 loudness significantly lower than trial 1 but higher than trial 2. In short, the compliance manipulation served to elicit lower trial 3 sound ratings from subjects. Between groups simple main effects indicated that compliance and control subjects failed to differ in the loudness with which they rated the

Table 4

Summary Table for 2 (Group: Real/Simulator) X 2 (Condition: Compliance/Control) X 3 (Trials) ANOVA

Effect	F-ratio
Main Effects	
Real/Simulator (R/S)	7.65**
Compliance/Control (C/C)	2.69
Trials (T)	65.58 ***
Interactions	
R/S X C/C	1.18
R/S X T	1.84
C/C X T	4.14*
R/S X C/C X T	1.77
Simple Main Effects	
Compliance/Control (C/C)	
Trial 1	0.19
Trial 2	0.52
Trial 3	2.70
Trials (T)	
Compliance	53.04***
Control	22.72***

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5

Mean Sound Intensity Ratings Across Trials for Each Condition*

(Compliance vs. Control)

Condition	<u>n</u>	Trial 1	Trial 2	Trial 3
Compliance	42			
<u>M</u>		16.33a	10.40b	13.98c
<u>SD</u>		3.29	4.88	4.61
Controls	22			
<u>M</u>		15.86a	11.18b	15.91a
<u>SD</u>		3.92	4.73	3.58

Note: Within-row and within-column means differ at $\alpha = .05$ if they share different subscripts.

* See Appendix 15 (p. 111) for pictorial representation of this Table.

tone on either trial 1, [$F(1,108) = 0.19$, N.S.] or trial 2 [$F(1,108) = 0.52$, N.S.]

Analysis of Variance on Trial 2 and 3 Sound Change (Difference) Scores

A 2 X 2 ("Real"/Simulator X Trial 2 /Trial 3 Difference Scores)

mixed analysis of variance (ANOVA) was conducted on trial 2 difference ($T2-T1$) and trial 3 difference ($T3-T1$) scores of subjects who received a compliance instruction. Trial 2 difference scores were computed by subtracting each subject's trial 1 loudness rating from their trial 2 score. Trial 3 difference scores were computed in the same way except for the fact that trial 1 scores were subtracted from trial 3 scores. This resulted in two scores for each subject indicating trial 2 and trial 3 sound change. A significant main effect was obtained for the "Real"/Simulator variable [$F(1,40) = 5.37$, $p < .05$]. Simulators, $M = -6.41$, $S.D. = 4.38$, showed a greater reduction in reported loudness than did "reals", $M = -3.27$, $S.D. = 4.24$. A significant main effect was also found for the Trials variable [$F(1,40) = 39.12$, $p < .001$] which indicates that subjects reported a greater reduction in loudness on trial 2, $M = -5.93$, $S.D. = 4.92$, than they did on trial 3, $M = -2.19$, $S.D. = 4.00$. Importantly, a "Real"/Simulator X

Trials interaction was not obtained. Thus, while simulators reported larger loudness reductions than "reals", the two groups reported a proportionate increase in loudness from trial 2 to trial 3. The summary table for this analysis can be seen in Table 6 and the Trial 2/Trial 3 Difference (Change) Score means for "reals" and simulators can be found in Table 7.

"Reals" and simulators were also compared on the number of subjects who reported a reduction in hearing on both trials 2 and trial 3. The analysis indicated that 81.8% (9/11) of the simulators complied by reducing their loudness on both of these trials, while of the 31 "reals" 64.5% (20) did the same. A Chi Square performed on these data indicated that "reals" and simulators failed to differ significantly in this regard. Even more interesting is that when only the 27 "reals" who reported hypnotic deafness on trial 2 were examined, it was found that 74.1% (20) of these subjects complied on trial 3. Compliance ratios for the compliance and control subjects are displayed in Table 8.

Table 6

Summary Table for 2 X 2 ["Real"/Simulator X Trial 2/Trial 3 Difference
(Sound Change) Scores] Mixed Analysis of Variance (ANOVA) (N = 42)

Effect	F-ratio	p-value
Main Effects		
"Real"/Simulator (R/S)	5.37	.026
Trials (T)	39.12	.000
Interactions		
R/S X T	.34	.566

Table 7

Trial 2 and Trial 3 Difference (Sound Change) Score Means for
"Reals and Simulators in the Compliance (Demand) Condition"

Group	n	Trial 2	Trial 3
<hr/>			
"Reals"	31		
M		-5.00	-1.45
SD		4.81	3.67
Simulators	11		
M		-8.55	-4.27
SD		4.41	4.34

Note: A negative score indicates a response bias (reduced loudness report)

* See Appendix 16 (p. 112) for pictorial representation of this Table.

Table 8

"Reals" and Simulators Compared by the Number of Subjects Complying
with the Demands on Both Trial 2 and Trial 3

Compliance				Control				
		"Reals"	Sim's			"Reals"	Sim's	
Complied		20	9	29	Complied	3	1	4
Did Not Comply		7	2	9	Did Not Comply	7	9	16
		27*	11		10*		10*	
(F(36) = 1.14, N.S.)				(F(20) = 0.92, N.S.)				

-
- * Four compliance "reals" and one control subject who did not show any deafness on trial 2 were excluded from the analysis.

2 X 2 ANOVA's Comparing Subjects by Group ("Reals"/Simulators) and Condition (Compliance/Control) on Five Individual Difference Measures

A series of 2 X 2 ("Real"/Simulator X Compliance/Control) analyses of variance (ANOVA's) compared subjects on each of five individual difference measures. These included four personality variables (absorption, attention to social comparison, cross-situational variability, and social desirability) and one cognitive rating strategy variable. None of the effects for the four personality variables were determined to be significant. However, the "real"/simulator main effect for strategy use was statistically significant [$F(1,60) = 4.31, p < .05$] indicating that simulators reported using distraction strategies to a greater extent than did "reals". Tables 9 to 13 contain the 2 X 2 ANOVA summary tables for each personality and rating strategy variable, and Table 14 the relevant means.

Correlations

Finally, in an attempt to predict subjects' responses to the trial 2 and trial 3 demands, correlational analyses were conducted between each of the five individual difference measures [Absorption (ABS); Social Desi

Table 9

Summary Table for 2 X 2 ("Real"/Simulator X Compliance/Control) ANOVA
on Absorption Scores

Effect	F-ratio
Main Effects	
"Reals"/Simulators (R/S)	.070
Compliance/Control (C/C)	.357
Interaction	
R/S X C/C	.010

Analysis based on 64 subjects. No significant effects.

Table 10

Summary Table for 2 X 2 ("Real"/Simulator X Compliance/Control) ANOVA
for Cross-Situational Variability (CSA I) Scores

Effect	F-ratio
Main Effects	
"Reals"/Simulators (R/S)	.059
Compliance/Control (C/C)	.220
Interaction	
R/S X C/C	.588

Analysis based on 64 subjects. No significant effects.

Table 11

Summary Table for 2 X 2 ("Real"/Simulator X Compliance/Control) ANOVA
for Attention to Social Comparison (CSA II) Scores

Effect	F-ratio
Main Effects	
"Reals"/Simulators (R/S)	1.045
Compliance/Control (C/C)	.177
Interaction	
R/S X C/C	3.208

Analysis based on 64 subjects. No significant effects.

Table 12

Summary Table for 2 X 2 ("Real"/Simulator X Compliance/Control) ANOVA
for Social Desirability Scores

Effect	F-ratio
<hr/>	
Main Effects	
"Reals"/Simulators (R/S)	2.040
Compliance/Control (C/C)	.161
Interaction	
R/S X C/C	.105

Analysis based on 64 subjects. No significant effects.

Table 13

Summary Table for 2 X 2 ("Real"/Simulator X Compliance/Control) ANOVA
for Cognitive Rating Strategy (Distraction) Scores

Effect	F-ratio
Main Effects	
"Reals"/Simulators (R/S)	4.307*
Compliance/Control (C/C)	1.717
Interaction	
R/S X C/C	.001

* $p < .05$ Analysis based on 64 subjects.

Table 14

Individual Difference Means Comparing "Reals"/Simulators
and Compliance/Control Subjects

Index		"Reals"	Simulators	Compliance	Control
Absorption Scale (ABS)	<u>M</u>	95.48	92.18	94.98	93.14
	<u>SD</u>	13.33	18.72	16.17	13.85
Cross-Sit'l Variability (CSA I)	<u>M</u>	22.21	21.50	22.33	21.27
	<u>SD</u>	7.49	7.07	7.91	6.08
Att'n to Social Comparison (CSA II)	<u>M</u>	33.10	36.00	34.29	33.73
	<u>SD</u>	11.42	12.39	11.01	13.30
Social Desirability (SD)	<u>M</u>	15.52	14.00	14.98	15.05
	<u>SD</u>	4.40	3.65	4.09	4.47
Cognitive Rating Strategy	<u>M</u>	5.33	6.09	5.71	5.36
	<u>SD</u>	1.66	1.41	1.69	1.47

Analysis based on 64 subjects.

rability (SD); Conformity (CSA I & II); and Cognitive Rating Strategy Scores], for the "real" subjects in the compliance condition, with the difference (sound change) scores for each of these two trials. These correlations are presented in Table 15. Examination of the table indicates that only ABS correlated significantly with trial 2 difference scores [$r(29) = .32, p < .05$] indicating that the higher the absorption score, the greater the reported sound reduction on trial 2. No other indexes approached significance with this trial. As for trial 3 difference scores, it was determined that ABS did not correlate significantly with reported sound reductions on this trial, however, a "studentized" t-test performed between the trial 2/trial 3-ABS correlations found that they failed to differ significantly [$t(40) = 1.63, N.S.$]. The only significant correlation found on trial 3 was for the first of two conformity subscales [Cross-Situational Variability (CSA I); $r(29) = .42, p < .01$] which implies that subjects who complied with the trial 3 demand obtained, on average, significantly higher CSA I scores. Again, no other indexes correlated significantly with sound change scores on this trial.

Table 15

Intercorrelations for Individual Difference Measures and Trial 2/3 Sound Change Scores (Hypnotic Reals in Compliance Condition Only; N = 31)

Individual Difference Measure	Trial 2 Sound Change (T2 T1)	Trial 3 Sound Change (T3 T1)
Absorption (ABS)	.32*	.20
Marlowe-Crowne Social Desirability (SD)	.22	.14
Concern for Social Appropriateness (CSA I & II)		
Cross-Situational Variability (I)	.18	.42**
Attention to Social Comparison (II)	.10	-.06
Cognitive Rating Strategy	-.24	-.29

Note: Listwise deletion of data (N=31). * $p < .05$, ** $p < .01$.

Discussion

The findings of this study are consistent with the hypothesis that hypnotic deafness reflects a reporting bias as opposed to a genuine change in perceptual experience. Both "reals" and simulators in the compliance condition reported significant reductions in loudness on trials 2 and 3 as compared with baseline. Specifically, 81.8% of simulators and 74.1% of the "reals" in the compliance condition who reported hypnotic deafness on trial 2, also complied by biasing their reports on trial 3. This finding suggests that subjects who are induced by hypnotic instructions to report reduced hearing on trial 2, will maintain their self-presentations as "able to reduce sound" by reporting such reductions when given a compliance instruction following trial 3.

Replicating previous studies, all trial 1 (baseline) loudness rating means were relatively high. As was expected, both "real" and simulating control subjects displayed what could visually be described as a symmetrical "V" response pattern. Their baseline (trial 1) and trial 3 scores were greatly elevated with virtually no difference between them, while

they reported significantly lower (loudness) scores on trial 2. These findings confirm the results obtained for control subjects by Spanos, et al. (1990b). While subjects in the compliance condition reported similar loudness ratings on trials 1 and 2, as compared with the controls, their trial 3 reports were significantly different from those of the controls. Overall, compliance subjects showed a 14.4% reduction in sound on trial 3 as compared with their baseline ratings. This is a marked contrast to the control subjects who displayed a 0.3% increase in reported loudness from trial 1 to trial 3. This finding suggests that the compliance instruction manipulation successfully induced a reporting bias.

Significant "real"- simulator differences were found on all three trials. The lower rating on the baseline trial by simulators suggests that these subjects may have been uncertain as to how to respond on this trial and therefore chose the conservative option of under reporting the intensity of the sound. Stanley et al. (1986) suggested that the central task of simulators is not to report honestly but to avoid detection as a faker, a role that can best be fulfilled by the adoption of a conservative response set marked by caution, suspicion, and inhibition of response when in doubt

The greater reductions in loudness reported by simulators on trials 2 and 3, as compared with "reals", confirms what was expected. Specifically, that simulators tend to exaggerate their responses when given demands that are relatively clear.

An interpretation of the trial means is most easily achieved by comparing only "real" and simulating compliance subjects. "Reals" displayed the expected pattern, reporting a large reduction in loudness on trial 2 and a somewhat smaller reduction on trial 3. The fact that "real" compliance subjects typically report a smaller reduction or more loudness on trial 3, compared with trial 2, is open to at least two interpretations. One is that trial 2 reductions involve two components - a real, perceptual component and a bias component added on to it, whereas trial 3 involves only a compliance component. An alternative interpretation is that the reason there is a difference in magnitude between trial 2 reductions and trial 3 reductions is because the compliance demand given after trial 3 is either more ambiguous or not as strong as is the demand for hypnotic deafness given on trial 2. Consequently, this would cause subjects to show less of a reduction on trial 3. Simulators could have responded in one of two

ways on trial 3. A trial 3 loudness report equivalent to that obtained on trial 2 would have suggested that the simulators interpreted the demands for loudness reduction on trial 3 to be as strong or as clear as the demands to reduce loudness on trial 2. Consequently, an increase in loudness from trial 2 to trial 3 for "reals" would have suggested that these subjects gave different reports on trials 2 and 3 despite equivalent demands on these two trials. This, in turn, would suggest that trial 2 included both a perceptual and a compliance component, whereas trial 3 included only a compliance component. However, our finding that the simulators' trial 3 reports increased in proportion to that shown by the "reals", indicates that subjects in both groups found the demands to be equally ambiguous on trial 3 as compared with those received on trial 2. This finding does not offer any evidence in favour of the theory that hypnotic "reals" are undergoing any perceptual changes during trial 2. Instead, it suggests that both the "reals" and simulators view the demands on trial 2 as less ambiguous than the demands on trial 3. For both groups, the demands on trial 3 are either not as strong for them or cause them to be uncertain as to what they should do. Therefore, they both respond less to the trial 3

demand than to the trial 2 demand.

Compliance induced reporting biases can be accounted for in terms of at least two hypotheses (Spanos et al., 1990a and b). One hypothesis suggests that subjects are purposefully deceptive in biasing their reports of suggestion-induced alterations in perceptual experience. A second hypothesis suggests that the compliance instruction led subjects to reinterpret their memory of the trial 3 tone as being less loud than they had originally believed it to be. While both of these hypotheses have received some support in the literature, a number of studies, using different methodologies (i.e. Spanos, Perlini, & Robertson, 1989) have found that conscious faking cannot adequately account for hypnotic responding.

The conscious deception and reinterpretation hypotheses are not mutually exclusive and both processes may occur in the same subject (Spanos, 1990a). Despite their differences, and regardless of how the present findings are to be explained, it is fairly obvious that suggestion-induced descriptions of altered perceptions may often be inaccurate, and that the discrepancies typically found between voluntary responses to suggestion (e.g. reporting an inability to hear when given a deafness

suggestion) and involuntary responses to the same suggestions, may reflect compliance-induced distortions of subjects' actual experiences (Wagstaff, 1986).

Given the controversy that exists in the social-psychological literature concerning the extent to which it is useful to conceptualize compliance as a dispositional index, several relevant measures were examined in this study. Specifically, it was to be determined if any of these individual difference measures correlated with, or could predict, the extent to which "reals" showed a reporting bias, on either trial 2 or trial 3, after they had been given the compliance demand. It was anticipated that this information would enable us to ascertain whether the same people tend to conform across situations or whether compliance is more strongly tied to specific contexts, than to dispositions. Scores on the Marlowe-Crowne Social Desirability Scale did not correlate significantly with trial 2 or trial 3 difference scores. This latter result is unlike that found in previous studies (i.e. Spanos, Burgess, & Perlini, 1990b) where it was determined that reporting bias did correlate significantly with social desirability scores. Of Lennox and Wolfe's two Concern for Social

Appropriateness Subscales (CSA I & II), neither correlated significantly with trial 2 sound change scores while only the first (Cross-Situational Variability) was significantly correlated with trial 3 response bias (sound change) reports. While these scales are supposed to measure long term tendencies to conform, the fact that one correlated significantly in a positive direction while the other showed a slightly negative nonsignificant relationship, may cast doubt on the validity of these subscales. In fact, besides Lennox and Wolfe's original study, no other study has demonstrated a significant relationship between either of these measures with response bias (i.e. Spanos et al., 1990a and b).

The perceptual change hypothesis would be supported by a significant correlation between rating strategy and trial 3 sound change scores since it holds that subjects will become deaf to the extent that they get highly absorbed in thinking about something other than the sound. It also predicts that the tendency of subjects to get absorbed can be measured by a trait index of absorption that correlates with the degree to which they report deafness on trial 2. However, this hypothesis also holds that absorption should not be correlated with how much subjects reduce loudness

on trial 3, because trial 3 can only be due to compliance. It cannot be due to a real perceptual change. Therefore, to test these varied hypotheses, all of which would have to be true in order for the perceptual change hypothesis to be accurate, subjects were administered Tellegen and Atkinson's Absorption (ABS) Scale which purports to measure imaginative ability or the tendency of people to become absorbed in imaginings. While the first of three conditions were met in support of the theory in that absorption correlated significantly with trial 2 sound change scores, the second part, that which requires a significant correlation between cognitive rating strategy and trial 3 sound change, was not achieved. In addition, the third condition was not met because absorption correlated to a large enough degree with trial 3 sound change that it did not differ significantly from the trial 2 difference correlation. Rather than providing support for the perceptual change hypothesis, these results again appear to be more consistent with the notion that trial 2 does not involve a special perceptual component.

While hypnotic procedures have traditionally been credited with providing subjects access to unconscious or "hidden" facets of personal

ty and mental functioning, there is no evidence to date which demonstrates that subjects can carry out behaviours that transcend normal volitional capacities.

The general use of this paradigm and the present cognitive social-psychological analysis have been instrumental in demonstrating a number of important findings regarding hypnotic phenomena. Results suggest that the previous suspicion regarding the veracity of hypnotic behaviours was understated. Behaviours traditionally characterized as hypnotic can be elicited through the manipulation of contextual cues that have nothing to do with hypnosis. In other words, reports of altered perception are produced by contextually cued attentional shifts. The findings also serve to cast doubt on the accuracy of subjective reports proffered by subjects. This was supported by the extremely high number of compliance subjects that reported reduced loudness following the third trial, which is a measure of pure reporting bias. Again, this demonstrates that the contribution of compliance is substantial - a behaviour which is known to be common among subjects who have been induced to comply. The data also verify that hypnotic procedures are not intrinsically more effective in

bringing about change and in particular, that this type of intervention does not produce deafness. The analysis, which compared "real" and simulating compliance subjects over three trials, demonstrated that subjective experiences accompanying a hypnotic induction procedure and the test suggestions themselves are, to varying degrees, ambiguous. Therefore, subjects must rely on contextual information in order to classify their experiences. These include expectations which are often made obvious to them by the experimenter. Without this information subjects are often unsure of how to respond.

Overall then, it is quite clear that hypnotic deafness can be accounted for without recourse to special psychic mechanisms. In fact, there appears to be no empirical data that provide compelling evidence in favour of a special-process or state interpretation. Rather, the available data provide strong and consistent support for cognitive social-psychological accounts of hypnotic deafness which emphasize the active, goal-directed nature of subjects' responding, the importance of their motivations to adopt and maintain the "good subject" role as this is defined to them, and the crucial influence of contextual cues in shaping the interpre-

tations and self-presentations that constitute "appropriate" responding.

Questionnaire A

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Please circle the appropriate answers using the key below.

1	2	3	4
Never	Seldom	Sometimes	Very often

1. Sometimes I feel and experience things as I did when I was a child.

1	2	3	4
Never	Seldom	Sometimes	Very often

2. I can be greatly moved by eloquent or poetic language.

1	2	3	4
Never	Seldom	Sometimes	Very often

3. While watching a movie, a television show, or a play, I may become so involved that I forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it.

1	2	3	4
Never	Seldom	Sometimes	Very often

4. If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture, almost as if I were still looking at it.

1	2	3	4
Never	Seldom	Sometimes	Very often

5. Sometimes I feel as if my mind could envelop the whole world.

1	2	3	4
Never	Seldom	Sometimes	Very often

6. I like to watch cloud shapes change in the sky.

1	2	3	4
Never	Seldom	Sometimes	Very often

7. If I wish, I can imagine (or daydream) some things so vividly that they hold my attention as a good movie or story does.

1	2	3	4
Never	Seldom	Sometimes	Very often

8. I think I really know what some people mean when they talk about mystical experiences.

1	2	3	4
Never	Seldom	Sometimes	Very often

9. I sometimes "step outside" my usual self and experience an entirely different state of being.

1	2	3	4
Never	Seldom	Sometimes	Very often

10. Textures--such as wool, sand, wood--sometimes remind me of colours or music.

1	2	3	4
Never	Seldom	Sometimes	Very often

11. Sometimes I experience things as if they were doubly real.

1	2	3	4
Never	Seldom	Sometimes	Very often

12. When I listen to music, I can get so caught up in it that I don't notice anything else.

1	2	3	4
Never	Seldom	Sometimes	Very often

13. If I wish, I can imagine that my body is so heavy that I could not move it if I wanted to.

1	2	3	4
Never	Seldom	Sometimes	Very often

14.I can often somehow sense the presence of another person before I actually see or hear her/him.

1	2	3	4
Never	Seldom	Sometimes	Very often

15.The crackle and flame of a wood fire stimulate my imagination.

1	2	3	4
Never	Seldom	Sometimes	Very often

16.It is sometimes possible for me to be completely immersed in nature or in art and feel as if my whole state of consciousness has somehow been temporarily altered.

1	2	3	4
Never	Seldom	Sometimes	Very often

17.Different colours have distinctive and special meanings for me.

1	2	3	4
Never	Seldom	Sometimes	Very often

18.I am able to wander off into my own thoughts while doing a routine task and actually forget that I am doing the task, and then find a few minutes later that I have completed it.

1	2	3	4
Never	Seldom	Sometimes	Very often

19.I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so.

1	2	3	4
Never	Seldom	Sometimes	Very often

20.Things that might seem meaningless to others often make sense to me

1	2	3	4
Never	Seldom	Sometimes	Very often

21. While acting in a play, I think I could really feel the emotions of the character and "become" her/him for the time being, forgetting both myself and the audience.

1	2	3	4
Never	Seldom	Sometimes	Very often

22. My thoughts often don't occur as words but as visual images.

1	2	3	4
Never	Seldom	Sometimes	Very often

23. I often take delight in small things (like the five-pointed star shape that appears when you cut an apple across the core or the colours in soap bubbles).

1	2	3	4
Never	Seldom	Sometimes	Very often

24. When listening to organ music or other powerful music, I sometimes feel as if I am being lifted into the air.

1	2	3	4
Never	Seldom	Sometimes	Very often

25. Sometimes I can change noise into music by the way I listen to it.

1	2	3	4
Never	Seldom	Sometimes	Very often

26. Some of my most vivid memories are called up by scents and smells.

1	2	3	4
Never	Seldom	Sometimes	Very often

27. Certain pieces of music remind me of pictures or moving patterns of colour.

1	2	3	4
Never	Seldom	Sometimes	Very often

28.I often know what someone is going to say before he or she says it.

1	2	3	4
Never	Seldom	Sometimes	Very often

29.I often have "physical memories", for example, after I've been swimming I may still feel as if I'm in the water.

1	2	3	4
Never	Seldom	Sometimes	Very often

30.The sound of a voice can be so fascinating to me that I can just go on listening to it.

1	2	3	4
Never	Seldom	Sometimes	Very often

31.At times, I somehow feel the presence of someone who is not physically there.

1	2	3	4
Never	Seldom	Sometimes	Very often

32.Sometimes thoughts and images come to me without the slightest effort on my part.

1	2	3	4
Never	Seldom	Sometimes	Very often

33.I find that different odors have different colours.

1	2	3	4
Never	Seldom	Sometimes	Very often

34.I can be deeply moved by a sunset.

1	2	3	4
Never	Seldom	Sometimes	Very often

Appendix 2

The Marlowe-Crowne Social Desirability Scale

Questionnaire C

Directions: Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally. Circle the corresponding letter to the right of the statement.

1. Before voting, I thoroughly investigate the qualifications of all the candidates. T F
2. I never hesitate to go out of my way to help someone in trouble. T F
3. It is sometimes hard for me to go on with my work if I am not encouraged. T F
4. I have never intensely disliked anyone. T F
5. On occasion I have had doubts about my ability to succeed in life. T F
6. I sometimes feel resentful when I don't get my way. T F
7. I am always careful about my manner of dress. T F
8. My table manners at home are as good as when I eat out in a restaurant. T F
9. If I could get into a movie without paying and be sure I was not seen, I would probably do it. T F
10. On a few occasions, I have given up doing something because I thought too little of my ability. T F

11. I like to gossip at times. T F
12. There have been times when I felt like rebelling against people in authority even though I knew they were right. T F
13. No matter who I'm talking to, I'm always a good listener. T F
14. I can remember "playing sick" to get out of something T F
15. There have been occasions when I took advantage of someone T F
16. I'm always willing to admit it when I make a mistake T F
17. I always try to practice what I preach. T F
18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people. T F
19. I sometimes try to get even, rather than forgive and forget. T F
20. When I don't know something, I don't at all mind admitting it. T F
21. I am always courteous, even to people who are disagreeable T F
22. At times I have really insisted on saying things my own way. T F
23. There have been occasions when I felt like smashing things. T F
24. I would never think of letting someone else be punished for my wrong doings. T F
25. I never resent being asked to return a favour T F
26. I have never been irked when people expressed ideas very different from my own. T F

27. I never make a long trip without checking the safety of my car.	T	F
28. There have been times when I was quite jealous of the good fortune of others.	T	F
29. I have almost never felt the urge to tell someone off.	T	F
30. I am sometimes irritated by people who ask favours of me.	T	F
31. I have never felt that I was punished without cause.	T	F
32. I sometimes think when people have a misfortune they only got what they deserved.	T	F
33. I have never deliberately said something that hurt someone's feelings.	T	F

Appendix 3

Concern for Social Appropriateness Scale

Questionnaire B

Instructions: Rate each question according to the extent to which it applies to you using a scale from 0 to 5, "0" being "not at all" and "5" being "extremely" (Circle one number for each)

1. I tend to show different sides of myself to different people. 0 1 2 3 4 5
2. It is my feeling that if everyone else in a group is behaving in a certain manner, this must be the appropriate way to behave. 0 1 2 3 4 5
3. I actively avoid wearing clothes that are not in style. 0 1 2 3 4 5
4. In different situations and with different people, I often act like very different persons. 0 1 2 3 4 5
5. At parties I usually try to behave in a manner that makes me fit in. 0 1 2 3 4 5
6. When I am uncertain how to act in a social situation, I look to the behaviour of others for cues. 0 1 2 3 4 5
7. Although I know myself, I find that others do not know me. 0 1 2 3 4 5
8. I try to pay attention to the reactions of others to my behaviour in order to avoid being out of place. 0 1 2 3 4 5
9. I find that I tend to pick up on expressions from others and use them as part of my own vocabulary. 0 1 2 3 4 5

Compliance

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10. Different situations can make me behave like very different people.	0 1 2 3 4 5
11. I tend to pay attention to what others are wearing.	0 1 2 3 4 5
12. The slightest look of disapproval in the eyes of a person with whom I am interacting is enough to make me change my approach.	0 1 2 3 4 5
13. Different people tend to have different impressions about the type of person I am.	0 1 2 3 4 5
14. It's important to me to fit into the group I'm with.	0 1 2 3 4 5
15. My behaviour often depends on how I feel others wish me to be	0 1 2 3 4 5
16. I am not always the person I appear to be.	0 1 2 3 4 5
17. If I am the least bit uncertain as to how to act in a social situation, I look to the behaviour of others for cues.	0 1 2 3 4 5
18. I usually keep up with clothing style changes by watching what others wear.	0 1 2 3 4 5
19. I sometimes have the feeling that people don't know who I really am.	0 1 2 3 4 5
20. When in a social situation, I tend not to follow the crowd, but instead behave in a manner that suits my particular mood at the time.	0 1 2 3 4 5

Appendix 4

Subject Distribution

Hypnotizability	Group	Compliance	No-Compliance (Control)	
High	Reals	31	11	42
High	Simulators	6	5	11
Low	Simulators	5	6	11
		42	22	

2 OF 2

PM-1 3 1/2" x 4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

Appendix 5

Low Simulating Instructions

In this experiment, which is one of hypnosis and perception, your task will be to behave as if you were an excellent hypnotic subject. The experimenter that you will be working with is Richard. He is aware that some people in the experiment are going to be faking hypnosis, but he has no idea which subjects they will be. Your task is to convince him that you are an excellent hypnotic subject. This is a difficult task and you may feel at some time that you have given yourself away. Don't worry about that possibility because if Richard realizes that you are faking he will stop the experiment immediately. So long as the session continues you will know that you are being successful in faking hypnosis.

I can't tell you how to behave or what to do, you have to use what you know about hypnosis, whatever cues you get from Richard, and whatever you learn from the situation to figure out how a deeply hypnotized subject would behave. Keep in mind that you are faking a highly hypnotizable subject and that your task is to pretend that you are going deeply in

to hypnosis, to perform as you think a deeply hypnotized person would perform during hypnosis, and when you are awakened, to behave as though you had been in hypnosis. In other words, you should fake not only during hypnosis, but afterwards as well, when you are asked about your experiences.

During the session you will be required to rate the intensity of three tones, while you are playing the role of a good hypnotic subject. When the session is finished, Richard will bring you back to talk to me. I would like you to continue faking until that time. I am the only one that will know that you are faking hypnosis and not in a deep hypnotic trance.

Appendix 6

High Simulating Instructions

In this experiment, which is one of hypnosis and perception, your task will be to behave as if you were a very good hypnotic subject. The experimenter that you will be working with is Richard. He is aware that some people in this experiment are going to be faking hypnosis, but he has no idea which subjects they will be. Your task is to convince him that you are an excellent hypnotic subject. This is a difficult task and you may feel at some time that you have given yourself away. Don't worry about that possibility because if Richard realizes that you are faking he will stop the experiment immediately. So long as the session continues you will know that you are being successful in faking hypnosis.

Your initial assessment of hypnotic susceptibility indicated that you are an excellent subject and are able to enter into deep hypnosis. Today when you are faking, I would like you to use your own past experiences of what it was like to be deeply hypnotized, and also whatever cues you get from Richard and whatever you learn from the situation to figure out how a deeply hypnotized subject would behave. Keep in mind that you are

faking a highly hypnotizable subject and that your task is to pretend that you are going deeply into hypnosis, to perform as you think a deeply hypnotized person would perform during hypnosis, and when you are awakened, to behave as though you had been in hypnosis. In other words, you should fake not only during hypnosis, but afterwards as well, when you are asked about your experiences.

During the session you will be required to rate the intensity of three tones, while you are playing the role of a good hypnotic subject. When the session is finished, Richard will bring you back to talk to me. I would like you to continue faking until that time. I am the only one that will know that you are faking hypnosis and not in a deep hypnotic trance.

Informed Consent Form

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This project has been reviewed and approved by the Department of Psychology Committee on Research with Human Subjects as preserving the safeguards of subjects' privacy, welfare and civil liberties. The Chairperson of the committee may be reached through the Department of Psychology, Carleton University.

Before you agree to participate in this experiment, we would like you to be aware of the procedures involved.

You will be presented with a 60 decibel pure tone on three separate occasions. Following each presentation, you will be asked to rate the intensity of the auditory sensation using a scale that you will be shown.

It is important to the success of the experiment that subjects endure the tone for the full 30 seconds which it is presented. We have found in previous experiments that all subjects are able to do this. However, if at any time you should find the sensations disagreeable and wish to withdraw from the experiment, you are free to do so, at that point, without loss of experimental credit or compensation.

I, the undersigned, have read the above and am willing to participate in the experiment described herein. I understand that I have the freedom to withdraw from the experiment at any time.

Signature of Participant

Signature of Investigator

Appendix 8

Procedure

During this experiment you will be exposed to a tone on three occasions. Shortly after each trial, you will be asked to state the number from this scale (point to category rating scale - CRS) that best reflects the loudness or intensity with which you heard the tone. Notice that "0" is marked "no sound" and means you could not hear the tone at all, while "10" is marked "moderately loud", and "20" is marked "intensely loud". You may, of course, choose any number on the scale in between these points.

The tones which were pre-recorded, will be presented to you through these headphones. Fifteen seconds after each of the tones end, I will say 'REPORT' and tap you on the head. I want you to then immediately call out the intensity of the tone. During each trial you will be asked to close your eyes. Please keep your eyes closed during each trial until I ask you to open them. Please put on the headphones. Feel free to adjust them so that they are comfortable for you. (When headphones are on ...) Can you hear me allright? Do you have any questions before we begin? Please close your eyes and listen for the tone.

Appendix 9

Category Rating Scale

0	1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	19	20
No				Moderately								Intensely							
Sound				Loud								Loud							

Appendix 10

Hypnotic Induction

Please close your eyes. Your ability to be hypnotized depends entirely on your willingness to cooperate. It has nothing to do with your intelligence. As for your will power, if you want to, you can pay no attention to me and remain awake all the time. On the other hand, if you pay close attention to what I say, and follow what I tell you, you can easily fall into a hypnotic sleep. Hypnosis is nothing fearful or mysterious. 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 part of the story. Your co-operation, your interest, is what I ask for. Your ability to be hypnotized is a measure of your willingness to cooperate. Nothing will be done that will in any way cause you the least embarrassment. Now relax and make yourself entirely comfortable. Relax completely. Relax every muscle of your body. Relax the muscles of your legs. Relax the muscles in your arms. Make yourself perfectly comfortable. Let yourself be limp. Relax more and more,

more and more. Relax completely. Relax completely. Relax Completely. Your legs feel heavy and limp, heavy and limp. Your arms are heavy, heavy, heavy as lead. Your whole body feels heavy, heavier, and heavier. You feel tired and sleepy, tired and sleepy. You feel drowsy and sleepy, drowsy and sleepy. Your breathing is slow and regular, slow and regular. 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. Remember that the dangers of hypnosis are a myth. Nothing will be done that is in any way harmful to you. I shall now begin to count. At each count you will feel yourself going down, 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 the things I tell you. Eight Nine

Ten- . Deep asleep! You wil not awaken until I tell you to do so. You will wish to sleep and have the experiences I shall presently de-

scribe. You are feeling comfortable and relaxed, comfortable and relaxed, and you are in a deep sound sleep, a deep sound sleep, fully prepared to respond to and experience what I will ask you to do. Fully prepared to respond to the suggestion I will now give you.

Appendix 11

Deafness Suggestion

On the next presentation of the tone, I would like you to control your mind and do everything that you can to greatly reduce the loudness of that tone. All normal, healthy people have the natural ability to exercise control over their mental processes and in this way, they can greatly reduce the loudness of what they hear. Often people are unaware of their natural abilities to control sensory experiences and, as a result, they do not use these abilities. However, probably everyone has had the experience of getting so caught up in their thoughts or daydreams that they no longer hear the radio playing, for instance. In other words, without realizing it, people can actually shut off their sensory experiences. What I will ask you to do today is to control your mind so that you can bring about this control of your sensory experiences when I ask you to do so. In the next phase of the experiment, it is very important that you use your natural abilities to control sensations to the fullest and in that way you

should greatly reduce the loudness of the tone that you hear.

All people have the ability to generate images and thoughts that will take their mind off intense sensations. In this next phase of the study, please use your natural abilities to the fullest in order to reduce your hearing. There are various things that people can do in this regard. For instance, some people find it helpful to imagine that their ears are so blocked and stuffed up that they can hardly hear the tone any longer. Other people, just focus their attention on thoughts or imaginings that distract them from the tone. Different things work for different people, but all normal people have the ability to gain control of their mind and in this way control their sensory experiences. What is important is that you try your best and do everything you can to reduce your hearing. Use your natural abilities to control your mind and in this way control your incoming sensations. By doing so, you should be able to greatly reduce your hearing.

Cancellation of the Deafness Suggestion

Okay. That's fine. Now stop imagining and let yourself, once again hear all sounds. The next and final phase is like trial one. I'll

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present the tone, and shortly after it ends, I will have you tell me how intense the sound was. Please close your eyes and listen for the tone.

Appendix 12

Wake-Up Procedure

You are going to wake up in a few moments. You will feel refreshed, wide awake, and in a good mood. I will count from 5 to 1 and with each count you will be more fully awake - 5 - starting to wake, 4 - more and more awake, 3 - still more and more awake, 2 - becoming more and more awake, 1 - wide awake! Open your eyes. You are now wide awake.

Appendix 13

Cognitive Rating Scale

This question asks about thoughts or imaginings people have while the tone is on. Sometimes in this situation people think of things other than the tone. For example, some people imagine a pleasant, quiet scene, some imagine that the tone is very far away and hardly audible; other people think of events of other kinds; some people try to distract themselves from the tone and others think or imagine their ears are stuffed up. Please indicate the extent to which you became absorbed in, imagined or thought about things of this sort. I was engaged in thinking or imagining about things of this sort: (circle one only)

1	2	3	4	5	6	7	8	9
Not at All		Slightly		Moderately		To a Large Degree		All the Time

Appendix 14

Debriefing Procedure

This study sought to compare the effectiveness of hypnotic procedures in altering sensory experiences. Much has been written on the effectiveness of hypnosis in altering one's experiences. However, few controlled laboratory studies have been conducted to systematically test these assertions. Furthermore, we are trying to isolate what particular characteristics of hypnosis are responsible for its effectiveness. Once isolated, we can test whether these are effective in the absence of a hypnotic induction procedure.

We have found in previous studies, namely pain studies, that success with suggestions seems to generalize to other situations, in the absence of explicit instructions. We examined this hypothesis using an auditory stimulus, in an effort to test the robustness of this phenomenon.

Do you have any questions about the study?

We would appreciate if you would not disclose the procedures of this experiment with others, so that they will have no biased preconceptions should they decide to participate in this study.

Thank you very much for your cooperation.

Appendix 15*

Actual Control and Demand Subject Responding

* Pictorial Representation of Table 5 (p. 58).

Appendix 16*

"Real and Simulating Demand Ss Sound Change Reports"

* Pictorial Representation of Table 7 (p. 62).

References

- Aronson, E. (1977). *The social animal*. San Francisco: Freeman.
- Asch, S. E. (1951). Effects of group pressure upon the modification and distortion of judgement. In H. Guetzhaw (ed.), *Groups, leadership, and men*. Pittsburgh, PA: Carnegie Press.
- Balthazard, C. G., and Woody, E. Z. (1985). The "Stuff" of Hypnotic Performance: A Review of Psychometric Approaches. *Psychological Bulletin*, 98(2), 283-296.
- Barber, T. X. (1969). Experimental Controls in Hypnosis Research. In *Hypnosis: A Scientific Approach* (pp. 16-31). Van Nostrand Reinhold.
- Barber, T. X., & Calverley, D. S. (1964). Experimental studies in hypnotic behavior: Suggested deafness evaluated by delayed auditory feedback. *British Journal of Psychology*, 55, 439-446.
- Black, S., & Wigan, E. R. (1961). An investigation of selected deafness produced by direct suggestion under hypnosis. *British Medical Journal*, 2, 736-741.
- Burgess, C. A. (1990a). Compliance and Perceptual Alterations in Hypnotic Subjects. Unpublished manuscript, Carleton University, Ottawa.
- Burgess, C. A. (1990b). Compliance and Suggested Deafness in High Hypnotizables. Unpublished manuscript, Carleton University, Ottawa.
- Burgess, C. A. (1989). The Role of Compliance in Hypnotic and Nonhypnotic Altered Auditory Sensitivity. Unpublished Honours paper, Carleton University, Ottawa.
- Coe, W. C. (1973). Experimental Designs and the State-Nonstate Issue in Hypnosis. *The American Journal of Clinical Hypnosis*, 16(2), 118-128.

- Crowne, D. P., & Marlowe, D. (1964). *The approval motive*. New York: Wiley.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349-354.
- Crutchfield, R. S. (1955). Conformity and character. *American Psychologist*, 10, 191-198.
- Erickson, M. H. (1938). A study of clinical and experimental findings on hypnotic deafness: 1. Clinical experimentation and findings. *Journal of General Psychology*, 19, 127-150.
- Evans, F. J. (1986). Hypnosis and behavioral compliance: Is the cup half-empty or half-full? *The Behavioral and Brain Sciences*, 9(3), 471-3.
- Franklin, B. et al. (1785). Report of Dr. Benjamin Franklin and other commissioners, charged by the King of France, with the examination of animal magnetism, as now practised at Paris. Translated from the French, with an Historical introduction by William Godwin. In M. M. Tinterow (ed.), *Foundation of hypnosis: From Mesmer to Freud*. Springfield, Illinois: Thomas, 1970.
- Graham, K. R., & Greene, L. D. (1981). Hypnotic susceptibility related to an independent measure of compliance. *The International Journal of Clinical and Experimental Hypnosis*, 29, 351-354.
- Green, D. M., & Swets, J. A. (1966). *Signal detection theory and psychophysics*. New York: Wiley.
- Hilgard, E. R. (1979). Divided consciousness in hypnosis: The implications of the hidden observer. In E. Fromm & R. E. Shor (eds.), *Hypnosis: Developments in research and new perspectives* (pp. 45-79). New York: Aldine.

- Harper, T. (1991, August 11). Reincarnation: Old theory in new age. *The Ottawa Citizen*. Exerpt reprinted from *Life After Death*.
- Hull, C. L. (1933). *Hypnosis and suggestibility: An experimental approach*. New York: Appleton-Century-Crofts.
- Jones, B., & Spanos, N. P. (1982). Suggestions for altered auditory sensitivity, the negative subject effect and hypnotic Susceptibility: A signal detection analysis. *Journal of Personality and Social Psychology*, 43, 637-647.
- Kiesler, C. A., & Kiesler, S. B. (1970). *Conformity*. Reading, MA: Addison.
- Kihlstrom, J. F. (1986). Strong inferences about hypnosis. *The Behavioral and Brain Sciences*, 9(3), 474-475.
- Kirsch, I., Silva, C. E., Carone, J. E., Johnston, J. D., & Simon, B. (1989). The Surreptitious Observation Design: An Experimental Paradigm for Distinguishing Artifact from Essence in Hypnosis. *Journal of Abnormal Psychology*, 98(2), 132-136.
- Kramer, E. & Tucker, G. R. (1967). Hypnotically suggested deafness and delayed auditory feedback. *International Journal of Clinical and Experimental Hypnosis*, 15, 37-43.
- Milgram, S. (1964). Behavioral study of obedience. *Journal of Abnormal and Social Psychology*, 67, 371-378.
- Naish, P. L. N. (1986). Hypnosis and signal detection: An information processing account. In P. L. N. Naish (ed.), *What is hypnosis? Current theories and research* (pp. 121-144). Milton Keynes, UK: Open University Press.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84, 231-59

- Orne, M. T. (1979). On the Simulating Subject as a Quasi-Control Group in Hypnosis Research: What, Why, and How. In Fromm, E. and Shor, R. E. (eds.) *Hypnosis: Developments in Research and New Perspectives*, Aldine Publishing Company.
- Orne, M. T. (1971). The simulation of hypnosis: Why, how, and what it means. *The International Journal of Clinical and Experimental Hypnosis*, 19, 183-210.
- Orne, M. T. (1969). Demand characteristics and the concept of quasi-controls. In R. Rosenthal & R. L. Rosnow (eds.), *Artifact in behavioral research* (pp. 143-179). New York: Academic.
- Orne, M. T. (1966). Hypnosis, motivation, and compliance. *American Journal of Psychiatry*, 122, 721-726.
- Orne, M. T. (1959). The nature of hypnosis: Artifact and essence. *Journal of Abnormal and Social Psychology*, 58, 277-299.
- Orne, M. T., Dinges, D. F., & Orne, E. C. (1986). Hypnotic experience: A cognitive social-psychological reality. *The Behavioral and Brain Sciences*, 9(3), 477-478.
- Perlini, A. H. (1991). *Multimethod Convergence on the Compliance Hypothesis of Hypnotic Responding*. Unpublished Doctoral dissertation, Carleton University, Ottawa.
- Perry, C. & Laurence, J-R. (1986). Social and psychological influences on hypnotic behavior. *The Behavioral and Brain Sciences*, 9(3), 478-9.
- Podmore, F. (1964). *From Mesmer to Christian Science. A short history of mental healing*. New Hyde Park, New York: University Books (Originally published 1909).

- Radtke, H. L., & Spanos, N. P. (1981). Was I Hypnotized?: A Social Psychological Analysis of Hypnotic Depth Reports. *Psychiatry*, 44(4), 359-376.
- Rosenthal, R. (1986). Nonsignificant relationships as scientific evidence. *The Behavioral and Brain Sciences*, 9(3), 479-481.
- Sarbin, T. R. (1950). Contributions to role-taking theory: Hypnotic Behavior. *The Psychological Review*, 57, 255-270.
- Scheibe, K. E., Gray, A. L., & Keim, C. S. (1968). Hypnotically induced deafness and delayed auditory feedback: A comparison of real and simulating subjects. *International Journal of Clinical and Experimental Hypnosis*, 16, 158-164.
- Sheehan, P. W. (1979). Hypnosis and the Process of Imagination. In Fromm, E., and Shor, R. E. (eds.), *Hypnosis, Developments in Research and New Perspectives* (pp. 381-411), Aldine Publishing Company.
- Sheehan, P. W. (1971). A methodological analysis of the simulating technique. *The International Journal of Clinical and Experimental Hypnosis*, 19, 83-99.
- Sheehan, P. W. (1986). Theories of hypnosis - useful or necessary paths to truth? *The Behavioral and Brain Sciences*, 9(3), 483.
- Shor, R. E., & Orne, E. C. (1962). *Harvard Group Scale of Hypnotic Susceptibility, Form A*. Palo Alto, CA: Consulting Psychologists Press.
- Spanos, N. P. (1987). Hypnosis research: Paradigms in conflict. *The Behavioral and Brain Sciences*, 10(3), 525-530.
- Spanos, N.P. (1982). Hypnotic Behaviour: A Cognitive , Social Psychological Perspective. *Research Communications in Psychology, Psychiatry and Behaviour*, 7, 199-213.

- Spanos, N. P. (1986a). Hypnotic behavior: A social-psychological interpretation of amnesia, analgesia, and "trance logic". *The Behavioral and Brain Sciences*, 9(3), 449-467.
- Spanos, N. P. (1986b). More on the Social Psychology of Hypnotic Responding. *The Behavioral and Brain Sciences*, 9(3), 489-502.
- Spanos, N. P. (1986c). Hypnosis research: Paradigms in conflict. *The Behavioral and Brain Sciences*, 10(3), 525-531.
- Spanos, N. P., & Barber, T. X. (1974). Toward a convergence in hypnosis research. *American Psychologist*, 29, 500-511.
- Spanos, N. P., Burgess, C. A., & Perlini, A. H. (1990). Compliance and Suggested Deafness in Hypnotic and Nonhypnotic Subjects. Unpublished manuscript, Carleton University, Ottawa. In press in the *Journal of Abnormal Psychology*.
- Spanos, N. P., Cobb, P. C., & Gorassini, D. R. (1985). Failing to Resist Hypnotic Test Suggestions: A Strategy for Self-Presenting as Deeply Hypnotized. *Psychiatry*, 48, 282-292.
- Spanos, N. P., Jones, B., & Malfara, A. (1982). Hypnotic deafness: Now you hear it - Now you still hear it. *Journal of Abnormal Psychology*, 91, 75-77.
- Spanos, N. P., & McLean, J. (1985). Hypnotically created pseudomemories: Memory distortions or reporting biases? *British Journal of Experimental and Clinical Hypnosis*, 3, 155-159.
- Spanos, N. P., Perlini, A. H., Patrick, L., Bell, S., & Gwynn, M. I. (1990). The Role of Compliance in Hypnotic and Nonhypnotic Analgesia. *Journal of Research in Personality*, in Press.

- Spanos, N. P., Radtke, H. L., Hodgins, D. C., Stam, H. J., & Bertrand, I. D. (1983). The Carleton University responsiveness to Suggestion Scale: Normative data and psychometric properties. *Psychological Reports*, 53, 523-535.
- St. Jean, R. (1986). Hypnosis: Artichoke or onion? *The Behavioral and Brain Sciences*, 9(3), 482.
- Stanley, S. M., Lynn, S. J., & Nash, M. R. (1986). Trance logic, susceptibility screening, and the transparency response. *Journal of Personality and Social Psychology*, 50, 447-454.
- Sutcliffe, J. P. (1961). "Credulous" and "skeptical" views of hypnotic phenomena: Experiments in esthesia, hallucination, and delusion. *Journal of Abnormal and Social Psychology*, 62, 189-200.
- Turk, D. C. & Rudy, T. E. (1986). Hypnotic behavior dissected or ... pulling the wings off butterflies. *The Behavior and Brain Sciences*, 9(3), 485.
- Wagstaff, G. F. (1981). *Hypnosis, Compliance, and Belief*. New York: St. Martin's Press.
- Wagstaff, G. F. (1986a). Hypnosis as compliance and belief: A socio-cognitive view. In P. L. N. Naish, *What is hypnosis? Current theories and research* (pp. 59-84). Milton Keynes, UK: Open University Press.
- Wagstaff, G. F. (1986b). State versus nonstate paradigms of hypnosis: A real or false dichotomy? *The Behavioral and Brain Sciences*, 9(3), 486-487.
- Weitzenhoffer, A. M. (1953). *Hypnotism: An objective study in suggestibility*. New York: Wiley.

Weitzenhoffer, A. M., & Hilgard, E. R. (1967). *Revised Stanford Scales of Hypnotic Susceptibility, Forms I and II*. Palo Alto, CA: Consulting Psychologists Press.

Weitzenhoffer, A. M., & Hilgard, E. R. (1962). *The Stanford Scale of Hypnotic Susceptibility, Form C*. Palo Alto, CA: Consulting Psychologists Press.

Weitzenhoffer, A. M., & Hilgard, E. R. (1959). *The Stanford Scale of Hypnotic Susceptibility, Forms A and B*. Palo Alto, CA: Consulting Psychologists Press.

White, R. W. (1941). The preface to the theory of hypnotism. *Journal of Abnormal and Social Psychology*, 36, 477-505.

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