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HYPNOTIC "INVOLUNTARINESS" AS MERE CONFORMITY

Donald R. Gorassini

A dissertation presented to the Faculty of Graduate Studies
at Carleton University in partial fulfillment of the
requirements of the Degree of
Doctor of Philosophy

Ottawa, Canada

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Abstract

This thesis evaluates two lines of thinking concerned with the relatively high incidence of apparent involuntariness exhibited by hypnotic subjects in response to suggestion. Subjects were pretested as either low or medium in hypnotic suggestibility (session 1) and were then administered one of four treatments (session 2): a) a training procedure designed to induce cooperation by dispelling negative conceptions about hypnosis, to describe the expected task clearly, and to provide subjects with an opportunity to practice responding in accordance with expectation; b) the same training procedure plus a model who demonstrated appropriate behavioral and cognitive responses, and repeated and clarified expectations; c) practise but no training; or d) an irrelevant "filler" task. Subjects were posttested on the same scale of suggestibility on which they had been pretested (session 3) and posttested again on a different suggestibility scale (session 4). Both scales assessed the degree to which subjects perceived their suggested responses to be occurring involuntarily. Training resulted in large increments in suggestibility as measured by both scales; training with the model was more effective than training without the model; and pretest suggestibility correlated positively with posttest suggestibility. These findings indicate that a majority of subjects are able to produce credible "hypnotic" behaviour and perceptions. These results in combination with other evidence reviewed strongly supports the notion that the "involuntariness" hypnotic subjects exhibit and experience is deliberately produced in response to the subtly communicated demands of the hypnotist.

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This thesis would not have been possible without the thoughtful and caring actions of others. Special thanks are due to my advisor, Nick Spanos, for his expert help. I thank also the dissertation committee which included Bob Hoffman, Bill Jones, Brian Little, Steve Lynn, Steve Rivers, and Dean Sid Wise.

The love of my parents, Rita and Dick, and of my dear wife, Karen, provided great inspiration throughout this project (and long before). I hope that I have returned the complement by enriching their lives at least in some small measure. Certainly they have, in large measure, enriched mine.

The ordinary motive to conformity is a sense, more or less vivid, of the pains and inconveniences of nonconformity.

Charles Horton Cooley

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Hypnotic "Involuntariness" as Mere Conformity

A hypnotic session involves an interaction between a hypnotist and one or more subjects, with the hypnotist speaking almost continuously throughout. Included within this communication are both direct requests asking subjects to do various things (e.g., "Relax."; "Close your eyes."; "Hold out your arm."; "Forget what happened.") and suggestions that particular responses are, or will be, happening to subjects (e.g., "You will become more and more relaxed."; "Your eyelids are heavy and closing."; "Your arm is rising."; "You will forget what happened.").¹

A session typically proceeds through two distinct phases: a hypnotic induction, and a test. Each phase, includes combinations of requests and suggestions. In the hypnotic induction, subjects are initially asked to relax and close their eyes, and to cooperate to their utmost throughout their upcoming interchange with the hypnotist. As the induction proceeds, direct requests are replaced by suggestions which declare that subjects are sinking into a deep sleep, yet which also declare that these same subjects are continuing to pay close attention to what the hypnotist is saying. The induction typically ends with the declaration that subjects are fully "asleep" and ready to respond to further suggestions.

In the second phase, test suggestions are presented which call for a wide variety of behaviours (e.g., limb movements, forgetting, hallucinations).² Interspersed between the test suggestions are requests of several types. Preceding almost all suggestions, subjects are

requested to do whatever is necessary for the suggested responses to occur. For example, before presenting an arm lowering suggestion, the hypnotist may ask subjects to lift their arm and hold it in front of them. As noted by Spanos (1971), a second kind of request instructs subjects to imagine a scene in which the suggested response is caused by a force operating independently of their own will:

Imagine that your arm is a hollow balloon being pumped full of helium. The arm is getting lighter and lighter as more helium is being pumped in. It is getting so light that it is slowly rising by itself.

In this scene, the helium, and not the subjects themselves, is causing the movement of the arm.

A third, and theoretically important request accompanying some suggestions is a challenge to subjects to prevent the occurrence of a suggested response:

Your hands are solid hunks of steel that are welded together. You will not be able to pull them apart no matter how hard you try. Go ahead and try to pull them apart.

In response to test suggestions, many subjects exhibit behaviour that does not appear voluntary. In principle, voluntary behaviour implies that the person has made a choice between two or more potentially appropriate courses of behaviour (Jones & Gerard, 1967). Individuals may then commit themselves to the behaviour that they believe to be most consistent with the attitudes they hold. Involuntary responses, in contrast, occur in the absence of choice. In principle it is behaviour that the person cannot choose either to initiate or to

stop. Among the involuntary behaviours commonly exhibited are reflexes (e.g., eye blink, knee jerk) and the action and interaction of many physical systems (e.g., blood circulation, digestion).

The fact that the suggested behaviour occurs at all seems to imply involuntariness on the respondent's part. Suggestions do not convey the expectation that the respondent has a choice. They are simply declarations that something will happen. The subject is seemingly not faced with the choice of either complying and producing the suggested behaviour, or refusing compliance and not producing it. This contrasts, for instance, with the situation in which requests are conveyed. Requests do imply both that a certain behaviour is expected and that the person requested may refuse to comply.

Two further observations bolster the notion that suggested behaviour is involuntary. First, subjects often seem unable to prevent the suggested behaviour when challenged to do so. Second, subjects in fact often straightforwardly report that their suggested behaviour seemed involuntary.

However, a central theoretical controversy concerns whether or not hypnotic behaviour can usefully be thought of as involuntary (Barber, Spanos, & Chaves, 1974; Hilgard, 1977; Sarbin & Coe, 1972; Spanos, 1981, 1982; Weitzenhoffer, 1980). According to one view, hypnotically suggested behaviour results from the operation of a special control system within the individual activated only when a hypnotic state is induced (see, e.g., Hilgard, 1977). Once activated, the function of this control system is to translate suggested behaviour into actual behaviour, independently of the will. According to a contending view,

the overt behaviour and private perceptions characteristic of hypnosis are undertaken voluntarily in conformance with expectation (Barber, Spanos, & Chaves, 1974; Sarbin, 1950; Sarbin & Coe, 1972; Spanos, 1981, 1982). The hypnotist is believed to convey subtly the invitation that subjects assume the identity of one who is behaving involuntarily. In conforming with this expectation, subjects produce the overt display and internal perceptions of involuntariness. In this thesis, evidence bearing on the topic of hypnotic involuntariness is considered with the purpose of deciding if subjects' apparent involuntariness is real or is simply the product of conformity.

Explanations of Involuntariness

Magnetism

Hypnotism has its roots in animal magnetism, a notion originated by Franz Anton Mesmer (1734-1815), a Viennese physician practicing in France (Boring, 1950). Mesmer believed that a subtle fluid permeated the universe, that the fluid could be directed by the will, and that it was capable of curing any human affliction (Mesmer, 1776/1948). To bring about cures, Mesmer would "direct" magnetic fluid from his own body, through his eyes or fingertips, toward the bodies of his patients, touch them or pass over them with magnetized objects, or simply speak to them. During treatment, many of the patients appeared to go into an unusual state in which they would appear unconscious yet still remain physically active, often standing, walking, or behaving rather violently, perhaps convulsing or screaming (Sarbin, 1962).

The magnetists' claims of curative powers drew the fancy of laypersons and the critical attention of scientists. An influential commission of noted scientists appointed mainly from the Faculte de Medicine and the Academie Royale des Sciences by King Louis XVI, and headed by Benjamin Franklin, was set up in 1784 to investigate magnetism. The result of its inquiry was a general rejection of what Mesmer had proposed. The commission concluded that the behaviour of magnetized individuals was the result not of magnetism, but of expectation (Ellenberger, 1970; Franklin et al., 1785/1970; Tinterow, 1970). The commissioners found that patients would behave in a "magnetized" way only when they knew what such behaviour entailed and that it was expected of them (Franklin et al., 1785/1970). For example,

when magnetic patients were blindfolded and so could not observe the magnetist, the commissioners found that they failed to respond to the magnetist's passes and stares.

The practise of magnetism was largely abandoned by the medical community soon after the commission's report (Boring, 1950; Tinterow, 1970). Nonetheless, some of the phenomena of so-called "animal magnetists" were considered by some investigators to be important discoveries that required scientific explanation. The first notable psychological theory to account for these phenomena was proposed in the mid nineteenth century.

Hypnotic Behaviour as the Outcome of a Special Control Process

James Braid (1795-1860), a Scottish physician working in Manchester, both coined the term hypnosis and created a theory of hypnotic behaviour that has persisted in one form or another to the present. In watching demonstrations by magnetists, Braid was struck by the state many "magnetized" subjects seemed to fall into. He rejected out of hand the magnetists' claims that the state was caused by the transmission of invisible magnetic fluid. Instead, he proposed that the state was a reflex which followed from staring fixedly at an object (Braid, 1841/1970). He noted that after a period of concentrated staring, the typical subject's eyes would flutter, then fuse shut, and the subject would fall into the hypnotic sleep. He believed that the hypnotic sleep shared a good deal in common with natural sleep, but that the two were not identical. Like persons in natural sleep, hypnotic subjects appeared to be unconscious and therefore detached from the immediate

environment. The major characteristic distinguishing hypnotic from natural sleep was subjects' maintenance of muscle tone. Muscles would remain tonic, sometimes rigid, enabling "sleeping" subjects to sit straight in a chair or even stand up.

Yet as Braid investigated more and more cases of hypnosis, he was struck, as were the commissioners earlier, by the propensity of hypnotic subjects to produce the behaviour that the hypnotist merely predicted would happen to them (Braid, 1846/1970). He considered this to indicate the existence of a control process operating independently of volition because subjects responded despite being asleep and, therefore, incapable of choice. A second reason was that responses were not requested as would be the case normally, and therefore could not be perceived as expected. Instead, suggested responses were merely predicted, implying that subjects should wait passively and observe whether or not the predicted response would occur.

Mono-ideodynamic action. In his later writings, Braid (1855/1970) described the process he believed to be responsible for suggested behaviours. This process, which he referred to as mono-ideodynamic action, is one in which fixed attention to an idea (ideo) of a single (mono) behaviour (dynamic) results automatically in the production of that behaviour. He argued that procedures for inducing the hypnotic state left subjects relatively free of thought, and open to focus on the ideas suggested by others. When an idea represented a particular behaviour, the mechanism of ideomotor action would gradually excite the muscles involved in the behaviour until ultimately the full response came to be produced.

Interestingly, Braid (1855/1970) noted that hypnosis was not necessary for the ideomotor reflex to produce action. He believed that some pathological personality types, particularly those who are gullible, would exhibit ideomotor action outside of the hypnotic state. However, he proposed that the induction of hypnosis by prolonged staring would enhance suggestibility by emptying the mind of thought and rendering it susceptible to representing ideas of movement spoken by others.

Braid's views remained influential and largely intact through the remainder of the nineteenth century (e.g., Bernheim, 1880/1900) and well into the twentieth (e.g., Hull, 1933). Bernheim (1880/1900) argued that "the most striking feature in a hypnotized subject is his automatism" (p. 125). Hypnotic subjects' propensity to carry out suggested responses was assumed to be a "peculiar aptitude for transforming the idea received into an act" (p. 137). Bernheim considered this an unusual aptitude because under normal circumstances

every formulated idea is questioned by the mind.... [I]n the hypnotized subject, on the contrary, the transformation of thought into action... is so quickly and so actively accomplished, that the intellectual inhibition has not time to act. (p. 137)

Bernheim argued that in hypnosis there is exaltation of the ideomotor reflex excitability, which effects the unconscious transformation of the thought into movement, unknown to the will. (p. 137)

To explain cognitive responses, such as hallucinations, he added: There is also... exaltation of the ideo-sensorial excitability, which effects the unconscious transformation of thought into sensation, or into sensory image. (p. 137)

Bernheim thus took over from Braid the notion that the mechanism of ideodynamic action transforms the hypnotically implanted idea of the suggested response into an actual response independently of the will.

Hull (1933) provided an interpretation of hypnosis couched in the language of his particular brand of behaviourism, which interestingly also preserved Braid's views. After an extensive program of experimentation, Hull (1933) concluded that

one of the most characteristic differences between actions performed through the influence of suggestion and ordinary acts is that the latter are usually felt to be somehow willed, whereas the former are acts felt not to be willed. (p. 395)

Hull assumed that the hypnotic induction would result in a reduction of thinking, as is the case in sleep, and that the

withdrawal of the subject's symbolic activity would naturally leave his muscles relatively susceptible to the symbolic stimulation from the experimenter. (p. 397)

Then, according to Hull (1933), ideodynamic action would simply cause the response to occur automatically.

The concept of mono-ideodynamic action cannot account for the common observation that subjects often exhibit failure to resist suggested behaviour when challenged to do so (Bramwell, 1906). For example, on many occasions when the hypnotist suggests that an arm is stiff and unable to bend, and then requests that the arm be bent, the subject fails to bend the arm. According to the concept of mono-ideodynamic action, subjects' attention should shift from arm-stiffness to arm-bending, and correspondingly, the ideomotor process should shift from producing arm-stiffness to producing arm-bending.

Two extensions of Braid's views, both of them purporting to account for subjects' failure to prevent suggested behaviour, have been proposed.

Extensions of Braid. Arnold (1946), equally believed the ideomotor reflex to be responsible for the occurrence of suggested behaviour. She also wished to explain how the idea of the response would come to occupy the subject's attention in the first place. Earlier conceptions had considered the mind to be naturally receptive to suggested ideas of behaviour. Arnold, however, took the act of attending to the idea of a response to be voluntary. Subjects would come to concentrate on the idea of a response because they perceived the hypnotist's suggestion as an invitation to imagine the occurrence of the response. In Arnold's writings, then, there is the implication that, far from being unconscious, the hypnotic subject actively construes the meaning of the hypnotist's messages prior to a response and then has the ability to choose whether or not to focus on the response suggested. Choice is then only temporarily revoked during the actual response. The subject would concentrate exclusively on the idea of the suggested response, allowing the ideomotor process to translate the idea into behaviour automatically.

Arnold (1946) attributed the failure of subjects to resist suggestions to the fact that they continued to imagine suggested behaviour even while responding voluntarily to challenges. The amount of attention devoted to making the voluntary counter-response was assumed by Arnold to be trivial and therefore unlikely to distract attention from thoughts of the suggested behaviour.

A somewhat different extension of Braid's views is the dissociation conception (Bramwell, 1906; Hilgard, 1977; Janet, 1919/1925). According to this view, hypnotic subjects surrender part of the capacity to control their own behaviour to the hypnotist. The "dissociated" control system has the ability to produce suggested behaviour automatically while subjects themselves retain the capacity to produce any voluntary behaviour that might be requested of them. For example, both sources of control operate when challenges are presented in tandem with suggestions. The dissociated system produces the suggested behaviour while subjects themselves produce the requested counter-response voluntarily. The consequence is the struggle between opposing responses that appears so commonly in response to challenge suggestions (Hilgard, 1963, 1965, 1977).

"Hypnotic Involuntariness" as Conformity

Conformity is a change in behaviour or belief in the direction of expectations conveyed by others (Gerard, 1965; Jones & Gerard, 1967; Kiesler & Kiesler, 1969). It is important to emphasize from the outset the fact that conformity involves both overt compliance and private acceptance (Kiesler & Kiesler, 1969). Hence, in an Asch-type experiment, one may be induced, as a result of group pressure, to comply overtly by saying that a line X is longer than a line Y (even though objectively the opposite is true) and actually be convinced privately of X's greater length. This may be contrasted to the case of simple compliance in which the individual overtly accedes to group pressure and says X is longer than Y, but privately maintains the belief that Y is actually longer than X. It is also important to note that acts of

conformity are voluntary since there is an element of choice involved (Gerard, 1965; Jones & Gerard, 1967). The individual may either change in conformance with expectation, or not so change.

One historically recent line of thinking has conceptualized the changes in behaviour brought about in a hypnotic session to be a function of conformity (Barber, 1969; Barber, Spanos, & Chaves, 1974; Sarbin, 1950; Sarbin & Coe, 1972; Shor, 1959, 1962, 1979; Spanos, 1971, 1982; Spanos & Gorassini, in press; White, 1941). From this perspective, Subjects who seem to behave involuntarily by responding overtly to suggestions, by seeming unable to prevent the occurrence of suggested responses, and who report having been convinced that their behaviour actually was involuntary, are viewed as conforming with what they perceive the hypnotist to be demanding of them.

Defining expectations. From their decision to participate in a hypnotic session until the presentation of test suggestions, novice hypnotic subjects are most likely preoccupied with defining what precisely their role in the session is to be. They may have no more than the general and uncertain understanding that the point of their presence is that they become hypnotized. They may be expected to trust that the hypnotist, a presumed expert in the area of hypnosis and one who will be sensitive to their desire for action-relevant knowledge, will inform them of just what is expected. Subjects' primary goal is therefore to obtain from the hypnotist's communications, explicit and implicit, information concerning how they should conduct themselves.

These communications, particularly those conveyed during the test phase of the session, imply that subjects are expected to adopt a

configuration of beliefs and behaviour (i.e., an identity) that the hypnotist will supply. The specific feature of the communication that leads to this expectation are the direct assertions, namely, the "you are..." statements (and their derivatives), that characterize hypnotic suggestions. These statements literally define who, or what, the subject is (e.g., "You are a mass of jelly."; "Your arm is a hollow, helium-filled balloon."; "Your memories are disappearing from your mind."). Subjects confronted with such statements may appropriately consider that the hypnotist expects them to adopt momentarily the identity supplied.

Subjects who conform to these expectations may then seek to define this identity more precisely. Invariably the identity supplied entails "being" someone in whom certain responses are occurring involuntarily. Challenges, imagine requests, and the content of test suggestions convey the notion that involuntariness is an expected component of the identity subjects are to adopt. Test suggestions imply that particular behaviour will simply "happen to" rather than be "initiated by" subjects (Spanos, 1982; Spanos & Gorassini, in press); the provision of requests to imagine may act as a cue to subjects to construe their suggested responses as occurring involuntary (Spanos, 1971); and challenges are often phrased to imply that subjects are expected to try but fail to prevent suggested behaviour (Shor, 1979; Spanos, Stam, D'Eon, Pawlak, & Radtke-Bodorik, 1980; White, 1941).

It is important, however, to note that very different, though equally appropriate, interpretations of the expectations signified by suggestions may be made. Rather than interpreting suggestions as

invitations to take on the identity of one who responds involuntarily, subjects may view them as predictions that particular involuntary responses are about to occur; suggestions are no more than explicit declarations that something will happen to the subject. When faced with such messages, subjects may appropriately wait passively to see whether or not the predicted response happens. That there are a number of possible interpretations of hypnotic suggestions may account for much individual variation in hypnotic responding (Spanos, 1971, 1982; Spanos & Gorassini, in press).

It is also important to note that even the adoption of the suggested identity need not imply that involuntariness will be exhibited. Involuntariness happens to be exhibited so frequently in hypnotic situations only because the identity that the hypnotist supplies invariably involves involuntariness as a component. According to the conformity conception, subjects who intend to define themselves as the hypnotist expects, would, for instance, successfully resist suggestions if resistance is the expectation conveyed (Spanos, Cobb, & Gorassini, 1983; Zamansky, 1977).

The process of defining expectations in hypnosis is summarized in figure 1. Subjects initially hold only general and uncertain conceptions about how they should behave. With the help of the hypnotist, these subjects elaborate their undifferentiated conception into a specific plan of action. Many subjects who cooperate with the hypnotist may readily arrive at quite different conclusions about what is expected of them. The solid lines in figure 1 represent the "definition path" leading to what traditionally has been defined as

Figure 1. The identity definition process.

hypnotic involuntariness. Here, subjects assume that their role entails adoption of an identity that the hypnotist will supply; the identity, in turn, involves being someone in whom certain responses occur involuntarily. The broken lines in figure 1 represent paths leading to actions that traditionally have not been defined as hypnotic. Here, subjects either do not perceive that the hypnotist expects them to adopt an identity that is supplied, or if they do adopt it, do not perceive it to entail "involuntariness".

The credibility of adopted beliefs. In asking subjects to adopt a given identity, the hypnotist, in effect, expects a public performance on the part of the subject and adoption of the corresponding private attitudes and beliefs. It has been observed throughout the history of hypnosis (see the review above; also see Weitzenhoffer, 1978, 1980) and in contemporary systematic investigations (Bowers, 1981; Spanos, Radtke, Hodgins, Stam, & Bertrand, in press) that, in addition to enacting the overt behaviours called for by suggestions (e.g., responding to challenge suggestions by not preventing the suggested behaviour), some subjects consistently report having been convinced that their suggested responses simply happened by themselves. One must ask, therefore, how subjects are able to achieve, at least momentarily, the unqualified belief that their behaviour is involuntary (Sarbin, 1950; Sarbin & Coe, 1972; Shor, 1959; Spanos, 1982; Spanos & Gorassini, in press; White, 1941).

In answer to this question, two different descriptions of the psychological process underlying the credibility of belief have been proposed. One description, offered by White (1941), and later extended

by Shor (1959, 1962, 1979), considered credibility to be the product of an altered state of consciousness, likened to drowsiness, and induced artificially by the hypnotist. This state was thought to occur as a result of the subject complying with the hypnotist during the hypnotic induction. In this phase of the session, the hypnotist asks subjects to remain aware of what is said to them, but otherwise to go to sleep. Compliance with these expectations was thought by White to be a state in which subjects would not quite be asleep because they were continuing to focus attention on the hypnotist's words, though they would not be quite awake and therefore substantially unaware of fundamental knowledge that would usually be at their disposal, such as an understanding of self and situation. According to Shor (1959, 1962, 1979), the drowsy state, or "trance", results in a loss of one's generalized reality orientation:

a network of cognitive understandings about reality in general which serves as a context or frame of reference within which all ongoing experiences are interpreted. If such a context of generalized understandings were lacking, ongoing experiences could not have their usual wide abstract interpretive significance. (1979, p. 122)

Persons and situations would not carry their normal meanings for someone in the drowsy state because the categories used to determine meaning would simply not be available in memory. Consequently, these individuals would be susceptible to definitions of reality from alternate sources such as the hypnotist (Shor, 1959).

In the hypnotic session, the hypnotist suggests that subjects define themselves and define the situation in a certain manner. In conforming to these expectations, subjects may make the attempt both to behave and

to believe as expected. At the same time, the hypnotic state supposedly prevents them from perceiving their actions within a wider frame of reference. Instead of viewing their behaviour and beliefs as components of a suggested role which they have chosen to adopt, they perceive them as truly indicative of who they are. Because the adopted private beliefs remain unqualified, they "tend to become more vivid, more concrete, and more absolute" (White, 1941, p. 501). As Shor (1979) notes:

Because in deep trance the ongoing conscious experiences are isolated from the usual interpretive framework of cognitive understandings of everyday life, the deeply entranced individual is not consciously aware of the distinction between imagination and reality; it simply could not occur to him at the time to make the distinction. (p. 123)

A different conceptualization of the psychological process underlying the credibility of beliefs was offered by Sarbin (1950). In contrast to White and Shor, Sarbin argued that an artificially induced altered state was not responsible for credibility. In Sarbin's opinion, the implicit assumption that led White (and later Shor) to consider an altered state as necessary, was incorrect. White assumed that in normal waking consciousness, adopted beliefs could not be held with the conviction exhibited by subjects in the state of drowsiness. Hypnotic subjects seemed to have the unique facility of persuading themselves of the involuntariness of their behaviour. Sarbin, however, contended (see also, Barber, 1969; Barber, et al., 1974; Sarbin, 1950; Sarbin & Coe, 1972; Spanos, 1982; Spanos & Gorassini, in press; Tellegen, 1979;

Tellegen & Atkinson, 1974) that self-persuasion is a common occurrence in waking life. Movie actors, for example, often report that they in some sense became the character defined in their scripts; momentarily, they define their scripted actions not as contrived, but as truly indicative of who they are (Sarbin & Allen, 1968). This facility, shared with hypnotic subjects, is more accurately thought of as a skill that individuals bring with them to the situation than as something that is artificially induced once they are there (Coe & Sarbin, 1971; Sarbin & Coe, 1972; Tellegen, 1979; Tellegen & Atkinson, 1974).

Long-term belief change. Some subjects who exhibit involuntariness not only perceive their suggested behaviour as involuntary during its occurrence, but also believe afterwards that it was involuntary (Sarbin & Coe, 1972; Spanos & Gorassini, in press; White, 1941). This contrasts, obviously, with the case of movie actors, who may believe and feel as dictated by their script for the duration of a performance, but who will not later claim that they continue to be someone else, nor state that their enactment was in any sense involuntary.

Little explanation has been offered for why some hypnotic subjects should hold such long-term beliefs. The psychological process underlying long-term beliefs about involuntariness is likely different from that underlying perceptions of involuntariness occurring during suggested responses. Recall that in the short term, adopting the belief that one's responses are involuntary is itself a deliberate act in response to the perceived demands of the hypnotist. However, this cannot explain why beliefs about one's involuntariness persist when the hypnotist is no longer present.

Whereas short-term belief change appears to be a motivated and deliberate response of expectation, long-term belief change may be more plausibly thought of as a mistaken conclusion about the cause of one's own behaviour. Whether the subject concludes that behaviour was mere conformity, or concludes that it was actually involuntary, depends on the information available on which to base such a causal attribution. For subjects to understand that they were conforming, they must access information suggesting that their behaviour was undertaken voluntarily in response to expectation. A direct sense of volition arises from conscious monitoring of the various steps involved in making a choice (Chanowitz & Langer, 1980). For instance, one must reflect on the fact that two or more behavioural options are under consideration, on the value being placed on each option, and on the commitment to pursue one of the options. However, under many circumstances, choices occur automatically, with the component processes occurring without reflection (Chanowitz & Langer, 1980; Langer, 1978). When they occur in this manner, the individual has no direct knowledge of whether behaviour was voluntary or involuntary. Instead, the individual must rely on information from secondary sources such as overt behaviour, other perceptions, and the context (Pryor, 1980).

The hypnotic situation is structured so that a direct sense of volition in response to suggestion is largely prevented while available information from secondary sources implies that suggested responses were involuntary. When hypnotists present test suggestions, they demand immediate responses and, as such, leave subjects very little time to carry out a thorough predecisional analysis of which behavioural

alternatives are available, what the relative value to the self of these alternatives is, and so on. Since such an analysis can only be fleeting and incomplete, there can be little direct information on which to derive a sense that behaviours and perceptions are being initiated in response to expectation. Instead, some subjects may be left with no more than the knowledge that they have exhibited a response that seemed involuntary when it occurred. Such an observation, on its own, is likely to be taken by these subjects as evidence that the suggested response really was involuntary (Averill, 1976, 1980).

Evaluating the "Special Process" and the
"Conformity" Views

Each of the major views discussed above propose several variables assumed effective in influencing the apparent involuntariness exhibited by hypnotic subjects. A number of studies have investigated the effects on this apparent involuntariness of the following: 1) message type (requests vs. suggestions); 2) the presence vs. the absence of a hypnotic induction; 3) challenges to prevent suggested responses; 4) subjects' general tendency to adopt alternate reality orientations; 5) use of cognitive and behavioural strategies; 6) general attitudes toward hypnosis; and 7) optimization treatments.

All of the studies to be reviewed include what are commonly referred to as "objective" measures (i.e., whether overt responses are exhibited ["passed"] or not exhibited ["failed"]) of involuntariness. Many, but not all, of the studies also include so-called "subjective" indexes of involuntariness. Some of these involve the investigator directly asking subjects to rate retrospectively the degree to which a given response seemed involuntary when it occurred. Others are less direct. An example of an indirect subjective index of involuntariness would be the degree to which an arm was rated as feeling light during an arm rising suggestion. In cases such as this one, the investigator refrains from asking questions that include terms like "voluntary", "choice", and "control".

While in principle, overtly "passing" suggestions is considered an indication of involuntariness, in practice, objective and perceived involuntariness correlate only moderately (Bowers, 1981; Spanos, Radtke,

Hodgins, Bertrand, Stam, & Dubreuil, 1982; Spanos, Rivers, & Ross, 1977). It is therefore important to keep in mind that measures of involuntariness that combine both objective response and perceived involuntariness more closely approach the traditional definition of "hypnotic" behaviour (Weitzenhoffer, 1978, 1980) than do objective measures alone. It is also important to be mindful of the fact that the term "measure" is being used here quite loosely. Whether or not the measures of involuntariness described actually reflect the underlying construct of involuntariness is what is currently at issue. In fact, the evidence considered below tends to support the notion that what appears as involuntariness by these measures actually reflects a deliberate role-enactment which includes objective and subjective manifestations of involuntariness as components.

Message type. The various conceptions of hypnotic behaviour outlined above make different predictions about the role of message type (i.e., whether behaviour is requested or suggested) in the production of involuntary behaviour. Braid (1846) noted that subjects would respond to the mere prediction (i.e., suggestion) that behaviour would happen. Because of this, it was assumed that the mere idea of a response was sufficient to result in its involuntary occurrence. Since both suggestions and requests contain the idea of a response, then they should have an equal likelihood of leading to involuntary behaviour.

Arnold's (1946) extension of earlier ideomotor views leads to a different prediction. She argued that suggestions are perceived by subjects as invitations to imagine the idea of a response whereas direct requests are perceived as invitations to carry out the behaviour voluntarily. From Arnold's viewpoint, subjects would only be expected to engage in imaginings, in turn, leading to the ideomotor process producing behaviour, when a suggestion is presented, but not when a direct request is presented.

Dissociation theory predicts that suggestions and instructions will have different effects on involuntariness. Hilgard (1965) proposed that the presentation of suggestions leads subjects to conclude that they are

to wait passively and observe whether or not the predicted response occurs. The suggested response would then, according to Hilgard, occur in subjects who, as a result of a hypnotic induction, surrendered part of their behavioural control to the hypnotist. When subjects are presented with requests, on the other hand, they assume that they themselves are expected to carry out requested behaviour (Hilgard, 1965). Dissociation therefore would predict that involuntariness will occur in response to suggestions but not requests.

According to the conformity view, suggestions imply that subjects adopt the identity of one who is behaving involuntarily, whereas requests do not carry this implication (Spanos, 1982; Spanos & de Groh, 1983; Spanos & Gorassini, in press). Therefore, the incidence of involuntary behaviour should be greater when suggestions are presented than when requests are presented.

Results from a number of studies indicate that involuntariness is more prevalent in response to suggestions than in response to direct requests (Spanos & Barber, 1972; Spanos & de Groh, 1983; Spanos & Gorassini, in press; Weitzenhoffer, 1974). Spanos & Gorassini (in press), for instance, presented each of the 48 subjects in their study with both suggestions and instructions to perform the same three movement tasks (arms moving apart, arm rising, arm lowering).

Therefore, each subject was presented with a total of six messages: three suggestions and three requests. The objective occurrence of behaviour and the degree to which involuntariness was perceived (rated by each subject on a four point Likert-type scale ranging from "not at all involuntary" [scored 0] to "involuntary to a great degree" [scored

3)) in response to each message was assessed. Results (shown in table 1) indicated that involuntary behaviour occurred more often in response to suggestions than to instructions. Overt behaviour was exhibited less frequently in response to suggestions than to requests, yet the percentage of overt suggested behaviour perceived as involuntary was greater than the percentage of overt requested behaviour perceived as involuntary.

It is noteworthy that a small percentage of subjects in the Spanos and Gorassini study consistently reported having responded involuntarily to direct requests (see table 1). A recent study by Spanos and de Groh (1983) sheds some light on this finding. Subjects in this experiment received either a suggestion (i.e., for moving an arm from left to right) or one of two requests. The requests differed in that one called for an arm movement that was an end in itself (i.e., "Move your arm to the right") while the other called for a movement that was a means to an end (i.e., "Reach to your right to get that pencil."). Objective and perceived involuntariness was assessed. In assessing perceived involuntariness, subjects were initially administered an open-ended questionnaire asking them to describe everything that they had experienced when responding to the message. Terms like "voluntary" and "involuntary" were not mentioned in order to minimize the likelihood of subjects making up their responses merely on the basis of demands communicated by the questionnaire. Following this, they were given the task of actually rating the degree of involuntariness they perceived.

In a replication of Spanos and Gorassini's (in press) results, Spanos and de Groh found that the incidence of involuntariness was

Table 1
The Incidence of Involuntariness in
Spanos and Gorassini's Experiment

Movement task	Message Type	
	Suggestion	Request
Arms apart		
Frequency	12	9
N	40	48
%	30	19
Arm rising		
Frequency	6	6
N	20	48
%	30	13
Arm lowering		
Frequency	21	10
N	38	48
%	55	21

Frequency = the number of overt responses experienced as involuntary.

N = the number of subjects who made an overt response (total N per message = 48).

% = the percentage of overt responses experienced as involuntary.

greater in response to the suggestion than in response to either of the two requests. The requests did not differ from one another in this regard. Within the suggestion condition, 17 of 30 subjects made the overt response and, of these, 7 (41%) rated their responses as either "mostly" or "completely" involuntary. In collapsing across request conditions, it was found that all subjects ($N = 60$) made the overt response requested and, of these, 9 (15%) indicated on the involuntariness scale that their response was either "mostly" or "completely" involuntary. Of the 7 suggestion subjects who made involuntary responses, all of them indicated in the open-ended testimony that their responses were at least partly involuntary. In contrast, none of the 9 subjects in the request conditions who rated their responses as involuntary on the involuntariness scale reported even partial involuntariness on the open-ended questionnaire.

Provision of the rating scale specifically containing the term "involuntary" may have caused request condition subjects to redefine their experiences retrospectively. Subjects in the suggestion condition, in contrast, had already defined their behaviour as involuntary at the time of its occurrence and therefore reported this on both the open-ended and the structured questionnaires.

Hypnotic induction. The special process views and the White/Shor conception consider a hypnotic state to be a necessary condition for involuntariness. As such, any procedures designed to induce or deepen such a state, according to this view, should enhance involuntariness. The conformity view, as initially proposed by Sarbin (1950; see also Barber, 1969; Barber et al., 1974; Sarbin & Coe, 1972; Spanos, 1981),

suggests that involuntariness is produced by subjects in their usual state of consciousness and that the concept of an altered state is superfluous.

Evidence suggests that a hypnotic induction procedure is generally no more effective than nonhypnotic, task-motivational instructions in leading to involuntary behaviour. Task-motivational instructions (Barber, 1969) direct subjects to try as hard as they can to respond to suggestions, and advises them that suggested behaviour can be performed equally well by "hypnotized" and "nonhypnotized" individuals. Barber (1969) has reviewed a large number of studies in which the incidence of a wide variety of overt responses and subjective experiences has generally been no different under hypnotic and task-motivational conditions. However, perceived involuntariness was not among the measures taken in these studies.

Several studies conducted subsequently have elicited such reports. In the study by Spanos and Gorassini (in press) and in the one by Spanos and de Groh (1983) described above, the pattern of results reported was the same for hypnotic and task-motivated subjects. The hypnosis/task-motivation variable was also found to be ineffective in producing differences in involuntariness in two further studies (Spanos & McPeake, 1977; Spanos, Spillaine, & McPeake, 1976).

Challenges. Many subjects appear to attempt but fail to prevent suggested behaviour from occurring and report afterwards that the behaviour seemed involuntary. Arnold (1946) argued that subjects "fail" to resist because they continue to focus attention on the idea of suggested behaviour despite the challenge. Hilgard (1977) attributed

this apparent failure to the dissociation of behaviour control. The conformity conception explained the apparent failure to resist as a perceived component of the suggested identity. A number of studies testing these notions have been conducted.

Zamansky (1977), in his experiment, used only "highly suggestible" ³ subjects, that is, individuals who, on previous testing, had "passed" a large percentage (usually two thirds or more) of the test suggestions they were presented. A pretest-treatment-posttest design was employed to test the effects of imagination on responses to challenges. Prior to the pretest, subjects were advised that they would be presented with several suggestions and were instructed that during each suggestion they were to imagine the response opposite to the one being suggested. Subjects were then administered either a hypnotic induction or task-motivational instructions, followed by the suggestions. Results for the pretest indicated that subjects largely "passed" (i.e., were unable to resist) the suggestions. The hypnosis/task-motivation variable had no effect.

In the treatment phase that followed, the experimenter made the off-hand remark to the effect that he had not expected subjects to fail resisting the suggestions because of the incompatible imaginings. A posttest procedure, similar in all respects to the pretest procedure was then run. Subjects now largely "failed" the challenge suggestions (i.e., successfully resisted). Again the hypnosis/task-motivational variable had no effect. Moreover, postexperimental inquiry indicated that on both pretest and posttest, subjects' beliefs regarding what the experimenter expected of them in response to the challenge correlated substantially with their degree of success at resisting.

These results support the conformity explanation while failing to support Arnold's and the dissociation explanations. If Arnold's view was correct, failure to resist should have correlated with what was imagined and not with what the hypnotist expected. If the dissociation view was correct, then hypnotic subjects should have failed to resist during the posttest because the dissociated control system would still be activated and capable of transforming suggested behaviour into actual behaviour. From the conformity perspective, the highly suggestible subjects used by Zuckerman were those who would generally perceive the hypnotist to be expecting them to adopt a certain identity. When they believed the identity entailed involuntariness, they failed to resist suggestions; when they believed it entailed voluntary action, they successfully resisted.

A recent study failed to provide such unequivocal support for the conformity explanation. Lynn, Nash, Rhue, Frauman, & Scott (1983a) used three groups of subjects in their study: high suggestibles administered a hypnotic induction; high suggestibles instructed to imagine suggested responses; and low suggestibles instructed to simulate the behaviour of highly suggestible hypnotics. Prior to receiving several test suggestions, all subjects were emphatically instructed to prevent any of the suggested responses from occurring.

Results indicated that hypnotic subjects were less successful at resisting suggestions than subjects in either of the other groups. Simulators and imagine subjects did not differ in this regard. Lynn et al. also had subjects rate their degree of involuntariness and their degree of imaginative involvement in suggestions. The mean

involuntariness rating of hypnotics was significantly higher than that of simulators, while that of imagine subjects fell between these two, but did not differ significantly from either. The mean involvement scores of hypnotic and imagine subjects did not differ from one another, but both exceeded the mean involvement score of simulators.

This study supports Arnold's (1946) conception because conditions in which the highest degree of imaginative involvement occurred were also the conditions in which the highest incidence of involuntariness was exhibited. The dissociation view is not supported because it cannot account for the equal levels of involuntariness produced by hypnosis and imagining. Conformity cannot be ruled out as an explanation because it is not known whether obtained differences in involuntariness were due to differences in perceived expectation. It might be argued that the low suggestible simulators provided a control sufficient for ruling out a conformity explanation (Lynn et al., 1983a). This argument says that low simulators pick up on the expectations of the hypnotist in the same way as highly suggestible hypnotics. Hence, if the low simulator responds differently from the high hypnotic, the difference can be attributed to the presence of a special process occurring in hypnotic subjects.

However, as conformity theorists have stressed, low and high suggestibles do not likely perceive expectations in the same way, and that this difference is sufficient to account for differences in involuntariness. In fact, this notion was tested by Lynn and his associates in a further investigation (Lynn, Nash, Rhue, Frauman, & Sweeney, 1983b). They found that in response to a challenge like the

one presented by Lynn et al. (1983a), that high suggestible hypnotics generally perceived failure to resist as expected whereas low suggestible simulators perceived successful resistance to be expected.

The importance of modifying subjects' definition of expectations in the challenge situation was underscored in a recent study by Spanos, Cobb, & Gorassini (1983). As did Zamansky (1977), these investigators used a sample of highly suggestible subjects. Prior to administering a series of motor suggestions, all subjects were instructed to resist the suggestions they would receive. They were then presented with either no further information or with one of three sets of information concerning the degree of success at resisting suggestions that they were expected to exhibit: "inability to resist" information suggested that some subjects get so deeply hypnotized that they cannot prevent the occurrence of suggested behaviour; "ambivalent" information indicated that whether or not subjects would be able to prevent suggested behaviour was unknown and what the experiment was designed to find out; and, "ability to resist" information suggested that "hypnotized" subjects should be able to resist because they have the unique ability to execute a suggested behaviour imaginably while totally foregoing it overtly. The rationale for presenting such a "cover story" to subjects in the ability to resist group was to insure that they viewed their task as entailing successful resistance of suggestions. Merely asking them emphatically to resist— as Lynn et al. (1983a) did— would likely have been interpreted much as challenges presented on previous test occasions had, namely, as expectations to try but fail to resist.

Following this, a hypnotic induction and four test suggestions (head lowering, arm lowering, arms moving together, arm rising) were administered. Results indicated that the extent of overt responding among subjects in the ability to resist condition was all but eliminated. On a four point scale representing the degree of overt response, ranging from "no distinguishable response to suggestion" (scored 0) to "a fully distinguishable response" (scored 3), the mean response score, averaged across suggestions, for the ability to resist group was, $\bar{M} = .55$. Subjects in the ambivalent group scored significantly higher ($\bar{M} = 1.46$), and significantly higher still were both the inability to resist group ($\bar{M} = 2.00$) and the no treatment group ($\bar{M} = 2.36$). The latter two groups failed to differ from one another at a statistically reliable level. Measures of perceived involuntariness were also elicited on a scale ranging from "maintained complete voluntary control" (scored 0) to "completely lost voluntary control" (scored 3). The ability to resist group reported experiencing a minimal degree of involuntariness ($\bar{M} = .71$). This mean was significantly lower than means of each of the other groups. The ambivalent group ($\bar{M} = 1.55$), the inability to resist group ($\bar{M} = 1.96$), and the control group ($\bar{M} = 2.16$) failed to differ from one another.

Despite the obtained differences in overt behaviour and perceived involuntariness, none of the groups differed on a measure of the extent to which they imagined suggested behaviour. Like Zamansky (1977), Spanos, Cobb, & Gorassini (1983) found that perceived expectation correlated with both objective and perceived involuntariness. For example, post-experimentally, subjects answered a questionnaire

inquiring into how many of the suggestions they believed the experimenter expected they would successfully resist. Alternatives ranged from "thought I would resist all" (scored 4) to "thought I would resist none" (scored 0). The mean expectancy score of the ability to resist group ($M = 3.00$) was significantly higher than that of either the ambivalent ($M = 1.55$), the inability to resist ($M = 1.00$), or the control ($M = 1.27$) groups. The latter three means did not differ significantly.

Subjects in this study appear to have responded in conformance with the hypnotist's expectations. Contrary to what Arnold would have predicted, imaginative activity did not correlate with involuntariness, and, contrary to the dissociation conception, hypnotic subjects successfully resisted suggestions when they believed that successful resistance was expected.

In a related study, Spanos, Weekes, and de Groh (1983) administered highly suggestible subjects a hypnotic induction and four motor test suggestions, with each of the suggestions accompanied by an imagine request. Following administration of the first two suggestions, subjects were told that in response to the remaining two, the conscious part of the mind would continue to concentrate on suggestions, but this time, the unconscious part of the mind would cause responses opposite to the ones suggested. At the same point in the procedure, subjects in a control condition were presented no such information but were, instead, given instructions to "deepen" their level of hypnosis.

On the two "pretest" suggestions, the experimental and control groups did not differ with respect to their degree of overt response or

their degree of perceived involuntariness. However, on the "posttest" suggestions, experimental subjects made the overt responses opposite to those suggested whereas the control subjects continued to respond as they had on the pretest. Nevertheless, mean perceived involuntariness scores on the posttest failed to differ. The two groups generally failed to differ, as well, on both the pretest and the posttest in the extent of suggested imaginings. As in previous studies, expectation was found to correlate with involuntariness.

Contrary to Arnold's position, responses opposite to those imagined, occurred, and were experienced as involuntary. Contrary to the dissociation position, subjects did not always exhibit the involuntary responses that were suggested, but instead often exhibited the responses opposite to those suggested. The results of this study, as do the collective findings of the other "challenge" studies, provide strong support for the conformity view.

The studies described above involved primarily the presentation of suggestions calling for motor responses. A good deal of attention has also been paid by investigators to the study of suggested cognitive responses, particularly suggested amnesia. Both the dissociation and the conformity views make explicit predictions about the conditions under which success at resisting (i.e., recalling forgotten material) should and should not occur. Kihlstrom and Shor (1978) describe hypnotic amnesia as a "dissociation of memories from conscious control" (pp. 346-347) and argue that hypnotic subjects are unable to access memories for which they are purportedly amnesic. According to this viewpoint, no attempts to recall amnesic material should be successful

until the amnesia suggestion is cancelled by the hypnotist. From the conformity perspective, it is assumed that subjects exhibit an apparent inability to recall target material because they perceive failure as a component of their adopted identity. However, if they perceived successful recall as a component, then they would no longer exhibit amnesia.

In an attempt to induce recall in hypnotically amnesic subjects, investigators in several studies (Ham, Radtke, & Spanos, 1981; Howard & Coe, 1980; Kihlstrom, Evans, Orne, & Orne, 1980; Schyler & Coe, 1981) have instructed subjects to recall honestly, have attached them to lie detectors during recall, and have informed them at length of the importance of doing their best to remember. These manipulations share the characteristic of implying that failure to recall involves an element of dishonesty. Results indicate that honesty manipulations have not been completely successful in reinstating recall. Although these findings have been used to support the dissociation hypothesis (Kihlstrom et al., 1980), they do not rule out a conformity interpretation. According to the conformity view, in addition to behaving overtly as suggested, subjects also adopt the belief that they cannot remember forgotten material, and therefore perceive their nonrecall as an inability rather than as a deliberate withholding of information. Honesty instructions, the presence of lie detectors, and requests not to hold back, are interpreted in much the same way as challenges; that is, as inviting an attempt to recall target material, but be unsuccessful at doing so.

The conformity position suggests that the most effective strategy for getting subjects to recall target material would be to make recall a component of the suggested identity. In a recent study by Spanos, Radtke, and Bertrand (in press) eight highly suggestible hypnotic subjects who repeatedly failed to resist amnesia despite exhortations to be honest and do their best to recall, were selected to participate in the study. Following Hilgard (1979), subjects were informed that during hypnosis a "hidden part" of the mind remains aware of information that the "conscious part" could no longer remember. These subjects were then administered an amnesia suggestion for a previously learned word list and challenged to recall. All showed high levels of amnesia. However, before cancellation of the amnesia, the experimenter instructed subjects' "hidden part" to recall the list. Without exception, subjects recalled all of the list words. The manipulation employed may be viewed as having altered subjects' previous definition of the suggested identity. Instead of demonstrating how unable they were to recall the target words, they were now to demonstrate the presence of the "hidden part" by recalling the words.

Yet, according to some investigators (e.g., Hilgard, 1979), hypnotic subjects actually do possess "hidden parts" that are dissociated from consciousness and that can be communicated with by the experimenter. It was thus a possibility that Spanos, Radtke, & Bertrand simply communicated with (rather than created through suggestion) the "hidden part" of subjects. Spanos, Radtke, & Bertrand tested these ideas in a second experiment. Highly suggestible hypnotic subjects were informed that they had two "hidden parts"; one that remained aware of everything

that occurred in their right hemisphere, and another that remained aware of everything in the left. Subjects learned a word list containing both concrete and abstract words. Half were informed that concrete words are stored in the right hemisphere and abstract words in the left. The other half were given the opposite expectation concerning storage location. Following an amnesia suggestion, all subjects displayed an inability to recall a list of words. However, before cancelling the suggestion, the experimenter successively "contacted" each subject's right and left "hidden parts". As anticipated, subjects recalled "forgotten" words purportedly stored in the right hemisphere when contact was made with the "right hidden part", and the opposite words when contact was made with their "left hidden part".

These results suggest that memories are not dissociated, but instead are fully accessible to so-called hypnotized subjects. Full recall can occur provided such a response is perceived as a component of the suggested identity.

Subjects' general tendency to assume alternate realities. According to the conformity view, individuals differ in their tendency to adopt alternate definitions of self and situation (Barber et al., 1974; Tellegen, 1979; Tellegen & Atkinson, 1974). It is the case in the hypnotic situation that the subject is expected to be someone who is not producing their responses voluntarily. Therefore, those with the tendency to switch definitions of self and situation, should be more likely to exhibit involuntariness than those without this tendency.

One self-report instrument purported to measure this tendency in a valid and reliable way, the Tellegen Absorption Scale (Tellegen &

Atkinson, 1974), includes such items as the following: "I am sometimes able to forget about my present self and get absorbed in fantasy that I am someone else."; "I can tell a story with elaborations to make it sound better and then have the elaboration seem as real to me as the actual incident, or almost so." In several studies, correlations of between .30 and .40 between scores on this scale and the incidence of objective responses to suggestion have been found (Spanos & McPeake, 1975; Tellegen & Atkinson, 1974; Yancher & Johnson, 1981). Spanos and his associates (Spanos, Radtke, Hodgins, Bertrand, Stam, & Moretti, 1982) conducted two studies in which it was found that scores on the Tellegen Absorption Scale correlated positively with not only the incidence of objective response (study 1, $r = .42$; study 2, $r = .30$), but also with measures that took perceived involuntariness into account (study 1, $r = .33$; study 2, $r = .35$).

The use of cognitive and behavioural strategies. According to the conformity view, many hypnotic subjects perceive their task to entail "being" someone who is responding involuntarily. To execute this task successfully, subjects must persuade themselves-- temporarily, at least-- that their response is actually occurring involuntarily. Several strategies, both cognitive and behavioural, are employed by these subjects in an attempt to enhance the self-perceived credibility of involuntariness.

Many subjects deliberately create their own perceptions of involuntariness by engrossing themselves in a particular kind of imagery, referred to by Spanos (1971) as goal-directed fantasy, or GDF. What these imaginings all share in common is that they depict suggested

responses to be occurring independently of the subject's will.

According to Spanos (1971), absorption in GDF functions to divert attention from facts not supporting perceptions of involuntariness (e.g., "I am complying."; "This is just an act."), and onto a definition of self and situation that does support such a perception (e.g., "My hollow arm is full of helium and rising by itself.").

Spanos & Barber (1972) devised a simple, nonreactive procedure for eliciting GDF in which subjects were asked to report what they had been thinking about and imagining during their responses to suggestion. Results of several studies employing this procedure (Spanos & Barber, 1972; Spanos & Gorassini, in press; Spanos & McPeake, 1974; Spanos et al., 1976, 1977) indicate that subjects whose reports suggest that they were employing GDF exhibited a higher degree of involuntariness than subjects whose reports were not classified in this way.

As mentioned above, many suggestions actually request that a GDF be employed. It has been found that not all subjects employed a GDF when specifically asked to do so, and many employed one spontaneously even when not asked to do so (Spanos & Gorassini, in press; Spanos et al., 1976, 1977). It would be expected, from the conformity perspective, that not all subjects would employ a GDF when asked to because some consider their role to entail passively waiting for the suggested response to occur, while others actively resist the adoption of a hypnotic identity and are invested in presenting themselves as nonhypnotizable (Jones & Spanos, 1982). Even when not asked to employ a GDF, some subjects would be expected to do so spontaneously because they perceive their task to entail adopting an alternate definition of self and situation, one that is compatible with suggestions.

Evidence from Spanos & Gorassini (in press) suggests that behavioural strategies are also employed to enhance perceptions of involuntariness. It was found that mean degree of overt movement scores within their suggestion condition differed according to movement task. Subjects moved least when arm rising was suggested, moved more when it was suggested that arms were moving apart, and moved most when arm lowering was suggested. The movement tasks appear to have been executed, with the aim of avoiding the kind of kinesthetic feedback commonly associated with voluntary movement. One could, for example, avoid the feeling of effort at having to overcome gravity by lifting an arm very slowly whereas avoiding such an experience would not require lowering one's arm quite so slowly.

General attitudes toward hypnosis. All conceptions of hypnotic behaviour suggest that attitudes toward hypnosis effect involuntariness. Special process views imply that subjects who have negative attitudes will prevent themselves from entering the hypnotic state and thereby prevent the special control process from becoming activated. In the conformity view, negative attitudes will result in the subject refusing to comply with expectations.

Several studies have reported a positive correlation between attitudes toward hypnosis and the incidence of objective responding (Melei & Hilgard, 1964; Spanos & McPeake, 1975; Yanchar & Johnson, 1981). However, in none of these studies was perceived involuntariness measured.

Cronin, Spanos, & Barber (1971) evaluated the incidence of objective and subjective suggestibility exhibited by subjects presented with

information designed to dispell commonly held misconceptions about hypnosis and by control subjects presented no instructions.

Experimental subjects were informed that hypnosis is not a sleep-like state in which individuals behave in an automaton-like manner, that it is not dangerous and does not produce any negative consequences, and that individuals can easily awaken from hypnosis. They were further informed that hypnosis actually involves a concentrated state of attention and that most individuals are able to have hypnotic experiences when they try hard to imagine along with suggestions of the hypnotist.

Results indicated that subjects in the experimental group obtained higher overt and subjective suggestibility scores than did controls. However, perceived involuntariness was not among the subjective measures taken by Cronin et al.

In a study by Barber and Calverley (1964a), subjects were told prior to the administration of several test suggestions either that hypnosis involves a test of one's gullibility or that it involves a test of one's imagination. Suggestibility was found to be greater in the imagination condition than in the gullibility condition. In a related study (Barber & Calverley, 1964b), student nurses were pretested on both objective and subjective aspects of suggestibility and were then randomly assigned to three treatment conditions. Those in one group were told that it is easy to produce hypnotic responses. Others were simply informed that they would again be given the test of suggestibility. Those in the third group were told by the director of student nurses that responding to suggestions would reinforce the conception that student nurses are

easily led and gullible. Subjects were then retested. The mean suggestibility scores of the positive information group increased slightly, the scores for the neutral information group decreased slightly, and those for the negative information group decreased substantially. The latter group's mean pretest score on the eight item Barber Suggestibility Scale (see Barber, 1969) objective portion was, $M = 3.9$, whereas the posttest mean sunk to a mere, $M = 0.1$!

The results of these studies suggest that negative attitudes can have a strong inhibiting effect on suggestibility. It remains equivocal, however, whether positive attitudes will enhance suggestibility if initial attitudes are not negative. In the Barber & Calverley (1964b) study, the positive information group exhibited a slight increment in suggestibility from pretest to posttest. However, this may have been due to the fact that the instructions provided in this condition informed subjects that active responding was expected.

Optimizing suggestibility. Several studies have been conducted in which theoretically prescribed conditions for increasing the incidence of involuntariness (i.e., suggestibility) to the maximum level possible have been presented. Much of the motivation behind such research reflects the practical concern of optimizing subjects' success in therapy; for example, in the enhancement of pain tolerance (Diamond, 1974). This research also has theoretical implications as the special process and the conformity views tend to make different predictions regarding the degree to which suggestibility can be enhanced. From the conformity standpoint, many subjects do not exhibit high levels of suggestibility because they either form the wrong task expectancies or

have negative attitudes toward hypnosis. Put another way, more subjects have the ability to attain high levels of suggestibility than are, showing. From this perspective, it would be expected that if the moderating effects of negative attitudes and incorrect expectations are lifted, then the latent abilities of these subjects will manifest themselves in the form of enhanced suggestibility scores. If, per chance, enhancing the favourability of attitudes and clarifying task-relevant expectancies did not lead to enhanced suggestibility, then the conformity explanation, at least as it is presently interpreted, would be seriously undermined.

Special process conceptions suggest that high suggestibility is primarily a function of an ability to enter a hypnotic state. This ability has typically been considered as largely resistant to modification (Hilgard, 1965, 1982; Perry, 1977). As Hilgard (1982) recently noted:

There is no good evidence that a nonresistant low-scoring [subject] or patient can be made into a somnambulist by a course of training. Once resistances have been overcome, and the individual is cooperative, the level of hypnotizability tends to remain quite constant and, what is interesting, that level is remarkably well predicted by initial testing, with only a few deviant cases. (p. 396)

Past research aimed at optimizing suggestibility has indicated that enhancement strategies based on the conformity view have been most successful in producing increments in hypnotic behaviour. As Diamond (1977) has noted, studies that have produced only small increments in

suggestibility rarely focused directly on changing hypnosis-specific attitudes and expectations. Instead, they provided subjects with repeated individualized hypnotic testing experiences (As, Weitzenhoffer, & Hilgard, 1963; Cooper, Branford, Schubot, & Tart, 1967), "personal growth" training (Tart, 1970), EEG biofeedback (London, Cooper, & Engstrom, 1974), and the like. From the conformity perspective, it is not surprising that such procedures were relatively ineffective. They simply were not aimed at directly influencing the most important determinants of hypnotic behaviour. On the other hand, modification studies that focused on dispelling preconceptions on which negative attitudes are based, and communicating expectations clearly, often produced rather substantial increments in suggestibility (Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer, Sachs, & Morrow, 1977).

Sachs & Anderson (1967) used 10 subjects who scored in the low to medium range on two different suggestibility pretests. Subjects were then run through several (usually six) one hour training sessions that included the following loosely standardized procedure: presentation of a clear conception of the subjective experiences that should be associated with responses to various suggestions; the opportunity, through practise, to increase the intensity of appropriate experiences in small, manageable steps; and the presentation of reinforcement in the form of verbal encouragement for appropriate responses. Following training, subjects were evaluated on the same tests of suggestibility that they had been administered on the pretest. All tests included measures of both objective responding and subjective experience. However, none of the subjective measures either in this study or in any of the

optimization studies included perceived involuntariness. Instead, subjective measures of other relevant experiences (e.g., arm lightness in response to an arm rising suggestion) have been taken.

Sachs and Anderson (1967) found large increments in objective suggestibility. For example, on the 12-item Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962), subjects' mean pretest score of, $M = 5.40$, increased on the posttest to, $M = 9.40$. According to the "low-medium-high" classification commonly employed by investigators, the mean scores represented an increase from medium to high suggestibility. (Scores of eight and above on the SHSS:C are considered indicative of high suggestibility, and scores from five to seven, of medium suggestibility.) On the 24-point subjective experience scale (i.e., a 3 point intensity rating for experiences associated with 8 of the 12 SHSS:C suggestions), mean scores also increased significantly from pretest ($M = 14.90$) to posttest ($M = 18.60$).

Kinney & Sachs (1974) employed a training procedure similar to Sachs and Anderson's (1967). Low and medium suggestible subjects were again run through a pretest-treatment-posttest design. In addition, a no treatment control group was included, the influence of initial suggestibility (low vs. medium) was evaluated, and a second posttest was administered one month after an initial posttest.

Results indicated that objective suggestibility was substantially enhanced from pretest to initial posttest for the training group. In contrast, mean objective suggestibility scores of the control group remained constant from pretest to initial posttest. Suggestibility

differences held from pre to posttesting under all conditions; that is, subjects initially medium in suggestibility attained higher mean objective scores on the posttest than did subjects initially low in suggestibility. The pattern of results obtained on initial posttesting carried over to the subsequent posttesting. Unlike Sachs and Anderson (1967), Kinney and Sachs (1974) did not report subjective suggestibility scores.

In a further study, Springer et al. (1977) employed a pretest-treatment-posttest design and contrasted the increments in suggestibility produced by a training procedure similar to the one used by Sachs & Anderson (1967) with that produced by progressive relaxation training. As with the other studies conducted by Sachs and his associates, large increments in objective suggestibility were obtained in the training condition. Relaxation training produced significant, though relatively small, increases in suggestibility. Subjective measures were not taken in this study.

The training procedure employed in the studies by Sachs and his colleagues appears to have been very effective in enhancing suggestibility. However, conclusions regarding effectiveness must be tempered with the understanding that the objective suggestibility results were the only ones replicated. Subjective suggestibility (not including perceived involuntariness) was only reported in one study and was found to be enhanced significantly by training. A second major problem with the studies reported is the lack of standardization of the training procedure. Because the procedure cannot be precisely specified, it cannot be precisely replicated.

Several studies have been conducted in which more standardized training procedures have been employed (Comins, Fullam, & Barber, 1975; Diamond, 1972; Diamond, Steadman, Harada, & Rosenthal, 1975; Katz, 1979). Diamond (1972) devised a verbally presented training procedure consisting of two facets: information designed to dispell negative preconceptions about hypnosis, and information designed to clarify task-relevant expectations. Attitude information was similar to that presented by Cronin et al. (1971; see above). Expectancy clarification information stressed that

all hypnosis really is is a time when you consciously decide to suspend the reality part of your mind for a certain period of time... and let your imagination take over. (Diamond, 1972, p. 176)

Also included was information on what to imagine when presented specific suggestions and hints on how to experience fully the sensations implied by the imaginings.

Diamond (1972) used initially low and medium suggestible subjects and employed a pretest-treatment-posttest design in which the effectiveness of several treatments was evaluated. Two "verbal training" treatments consisted of the attitude- and expectancy-relevant information as presented by a videotaped model of the same sex and of approximately the same age as subjects. In one condition, this presentation was augmented with information designed to motivate subjects to do their best, and with the videotaped subject actually producing the overt behaviour expected in response to each suggestion. In the other group, verbal information was augmented with the motivational instructions only. A third group received only

motivational instructions and overt behavioural modelling, a fourth group received only motivational instructions, and a fifth group served as no treatment controls.

Two different posttests were administered and results for both indicated that conditions involving verbal training produced higher mean overt suggestibility than did conditions in which there was no verbal training. The verbal training means did not differ from one another, and the means of the other three groups also failed to differ from one another. Since Diamond (1972) did not employ the same suggestibility measures on the posttest as were employed on the pretest, an accurate assessment of the degree of enhancement is not possible. However, a rough assessment is possible. The pretest instrument, the Stanford Hypnotic Susceptibility Scale, Form B (SHSS:B; Weitzenhoffer & Hilgard, 1959) is generally thought to be easier (i.e., more suggestions are usually "passed") than the posttest instrument, the SHSS:C. Both scales contain the same number of suggestions and therefore, if a treatment had no effect, one would expect lower scores on the SHSS:C (posttest) than on the SHSS:B (pretest). As it turned out, the posttest mean for the verbal training groups ($M = 6.68$) was greater than the pretest mean ($M = 3.40$), whereas the posttest mean for the other three groups ($M = 3.57$) was slightly less than it was on the pretest ($M = 3.83$). This suggests that Diamond's training procedure was effective in enhancing suggestibility.

Comins et al. (1975) employed a training procedure somewhat similar to Diamond (1972). Training initially involved the presentation of information designed to motivate subjects to do their best on expected

tasks, and with information suggesting that hypnotic responding involves actively ~~imagining~~ along with suggestions, as opposed to passively waiting for suggested responses to happen on their own:

Subjects who have done well on these tests have reported that instead of just hearing the tape and waiting for something to happen, they concentrate on it and try to think and imagine along with it. Subjects who do not do well just listen to the tape and wait for something to happen, and of course, nothing does. (Comins et al., 1975, p. 670)

Information on how to respond to specific suggestions in accordance with the general prescription was then presented. For instance, the hypnotist would model the appropriate response behaviourally and tell subjects:

I imagine my arm is feeling heavier and heavier and that it is moving.... Now I didn't put my hand down, but I listened to the suggestions that I was giving myself and imagined that my arm was heavier and heavier. If you think of it as heavy, it tends to be heavy and moves down. I find it helps if I imagine my arm as a solid piece of steel being pulled down harder and harder. (p. 670)

Comins et al. (1975) employed a pretest-treatment-posttest design in which both objective and subjective aspects of suggestibility were measured using the BSS. Three between subjects variables were manipulated factorially. The first factor, "enhancement treatment", consisted of provision of one of the following enhancement strategies: the training procedure described above; a hypnotic induction; or an irrelevant filler task. The second factor involved either instructing

subjects to be honest in reporting about their subjective experiences or giving them such instructions. The third factor was subjects' initial level of suggestibility: either low, medium, or high.

Objective and subjective gain scores were computed for each subject. Analysis of the subjective scores indicated that there was a significant main effect for treatment and suggestibility. No other sources were significant. Analysis of the subjective scores revealed significant treatment and honesty instruction main effects. Post hoc comparisons indicated that objective score gains produced by the hypnotic induction ($M = 1.4$) and the training instructions ($M = 1.9$) were significantly greater than the gains produced in the control condition ($M = 0.1$). This pattern was the same for subjective score gains. However, subjective gains were larger than objective gains except in the control condition: hypnotic induction, $M = 3.3$; training, $M = 3.3$; control, $M = 0.0$.

Gains in both objective and subjective suggestibility exhibited in the training condition were expected. The fact that the subjective gain was relatively larger than the objective gain was possibly due to the fact that the instructions of Comins et al. stressed strategies for enhancing subjective experiences while they did not communicate the fact that subjects' themselves were to produce overt responses.

The significant changes produced by the hypnotic induction accords with both the special process and the conformity conceptions. In the procedure of Comins et al., subjects in the hypnotic condition were not administered an induction prior to the pretest whereas they were administered one prior to the posttest. Increments in suggestibility may therefore have been due to a special process being active during the

posttest but not the pretest. It is also possible that increments were due to differences in expectation before and after the administration of the induction. The hypnotist may have been perceived to expect suggestions to be effective following but not prior to the induction.

Post hoc comparisons indicated that subjects initially low and medium in suggestibility exhibited greater objective gains than those who were initially high. This was likely due to a ceiling effect.

Subjective suggestibility was greater when honesty instructions were not given than when they were. Comins et al. explained this result as possibly due to the fact that honesty instructions caused subjects to focus more closely on their sensations and adopt a more critical attitude toward them.

A partial replication of the Comins et al. procedure was done by Katz (1979). In this study, the effects of three treatments were contrasted: a training procedure similar to that employed by Comins et al.; the same training procedure followed by progressive relaxation training; and, a hypnotic induction procedure. The design of the experiment was similar to Comins et al. in that subjects were pretested and posttested using the same suggestibility scale. However, instead of using the BSS, Katz used a version of the SHSS:C that included measures of both objective and subjective responding.

Results indicated that both of the training groups exhibited greater increments in both objective and subjective suggestibility than did the hypnotic induction group. These results confirm the results of Comins et al. insofar as the effectiveness of the training procedure is concerned. However, unlike the findings of Comins et al., Katz found

that training produced greater increments in suggestibility than did the hypnotic induction.

Diamond et al. (1975) suggested that training procedures could be made more effective if it could be insured that subjects optimally understood the information presented. To test this idea, Diamond et al. (1975) attempted, in one condition, to produce optimal understanding of information whereas in another condition, they did not. In the "optimal learning" condition, subjects read information and answered a series of quizzes. In the "nonoptimal learning" condition, information was given to subjects to read but they were not quizzed. Also included in the design were two control groups: one was presented with irrelevant information about hypnosis (i.e., information about its history); and the other was given no instructions.

Results indicated that mean post-treatment objective scores of the optimal learning, the nonoptimal learning, and the irrelevant information groups did not differ from one another but were significantly greater than the mean of the no treatment group. Mean posttreatment subjective suggestibility in the optimal learning condition was significantly greater than in the nonoptimal learning and the irrelevant information conditions. The means of the latter two groups were equal to one another but greater than that of the no treatment group.

Consistent with the findings of previous studies, training produced the greatest objective and subjective suggestibility. The optimal learning condition was more effective than any other condition only in enhancing subjective suggestibility. This was likely due to the fact

that the training information of Diamond et al. focused mainly on strategies to enhance subjective experience while they did not indicate to subjects that they were expected to produce overt behaviour.

As reported earlier, Diamond (1972) found that the presentation of a behavioural model failed to produce increments in suggestibility ~~beyond~~ those produced by a no treatment control group. In contrast to these findings Klinger (1970) found that the presentation of a model responding successfully to suggestions led to increments in objective and subjective suggestibility that were greater than those of a no treatment control group. Two other studies also demonstrated the effectiveness of a behavioural model in enhancing suggestibility. Devoge and Sachs (1973) found that subjects presented with a model who passed all suggestions scored higher on a subsequent test of objective suggestibility than did those who did not see a model. Botto, Fisher, and Soucy (1977) found that subjects who prior to a test of suggestibility saw a model responding successfully, exhibited a greater degree of objective suggestibility than did those who viewed an unresponsive model.

To summarize the optimization research: Consistently large increments in objective suggestibility were produced by the training procedure employed by Sachs and his colleagues (Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer et al., 1977). In other studies, objective increments produced by training exceeded increments produced by no treatment (Comins et al., 1975; Diamond, 1972; Diamond et al., 1975). However, in one instance, training produced no greater objective enhancement than did irrelevant information about hypnosis (Diamond et

al., 1975), and in another, training produced no more objective enhancement than did a hypnotic induction (Comins et al., 1975).

Training also resulted in a significantly greater enhancement of subjective suggestibility than resulted when no treatment was presented (Comins et al., 1975; Diamond et al., 1975). Training which involved insuring that information was understood optimally was more effective in enhancing subjective suggestibility than training where understanding was not optimized (Diamond et al., 1975).

Taken together, these studies support the notion that expectation and attitude play a major role in suggestibility, and that more subjects have the ability to produce hypnotic responses under normal testing conditions than are showing. This conclusion must, however, be qualified by the fact that no studies measured perceived involuntariness, and by the fact that the only studies in which large suggestibility increments were consistently found (Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer et al., 1977) used only loosely standardized procedures and, in all but one case, measured only objective suggestibility.

A Further Research Project Designed
to Enhance Suggestibility

In the tradition of the optimization research, a study was undertaken with the purpose of evaluating the effects of two training procedures on suggestibility. In a significant extension of past research, suggestibility measures included an index of perceived involuntariness. This index was elicited following responses to suggestions by asking subjects to rate the degree to which their responses seemed involuntary when they were occurring.

As with past successful enhancement procedures, both treatments contained information designed to overturn commonly held negative preconceptions about hypnosis (Cronin et al., 1971; Diamond, 1972; Diamond et al., 1975); clarification of expected tasks and provision of strategies for enhancing the credibility of hypnotic experiences (Comins et al., 1975; Diamond, 1972; Diamond et al., 1975; Katz, 1979; Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer et al., 1977); a procedure designed to optimize the understanding of expectations (Diamond et al., 1975); and the opportunity to practice expected tasks (Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer et al., 1977).

Additional components were also built into the training treatments to help insure enhancement. First, expected tasks were described in a clearer, more extensive fashion than before through the use of explicit instructions and analogies. These provisions made clear that both convincing overt behaviour and credible internal perceptions were to be deliberately produced in response to suggestions. Moreover, expected tasks in response to specific types of suggestions (e.g., motor, cognitive, challenge) were described. This was viewed as a particularly

important provision because certain types of suggestions introduce unique sources of ambiguity. For example, challenges may be interpreted equally as invitations to try but fail a suggestion, or as formal cancellations and therefore as invitations to cease responding to suggestions altogether (Spanos et al., 1980). Second, subjects were given the opportunity, within the training session, to practice generalizing what they had learned to novel suggestions. Then, following practice, they were instructed to respond in accordance with training in all subsequent hypnotic sessions. Previous studies have not employed generalization procedures within a standardized training format. These procedures may be important to insure transfer of training.

Thus, subjects in both training groups received the information described (presented via audiotape), and practice. However, in addition, one of the groups received the presentation of a female model (via videotape). Included in the presentation were features that were included in successful enhancement studies that employed a model: the model was approximately the same age as subjects (as in Diamond, 1972); the appropriate overt responses to suggestions were modelled (as in Botto et al., 1977; Comins et al., 1975; Devoge & Sachs, 1973; Katz, 1979; Klinger, 1970); as overt responses were demonstrated, the model also verbalized the appropriate suggestion-related perceptions (as in Comins et al., 1975; Katz, 1979); and, within the context of a "post-session interview" with the experimenter, the model described her interpretation of suggestions and the cognitive strategies she used to enhance suggestion-relevant perceptions (as in Diamond, 1972).

Training information (or training information plus the presentation of the model) was given immediately before the administration of each of four practise test suggestions. The suggestions called for arm rising, hand lock, visual hallucination, and amnesia, and information provided to subjects was specifically tailored to each type of suggestion. Following their response to the last practise suggestion, subjects were encouraged to generalize what they had just learned by responding without further training to four more suggestions (head lowering, body immobility, auditory hallucination, amnesia). Following their treatment session (Session 2), subjects were posttested for hypnotic suggestibility using the same scale employed for pretesting (Session 3) and then again using a different suggestibility scale (Session 4).

The effectiveness of the model and no model training conditions was compared against two control treatments. During session two, subjects in a Practise Alone condition were administered a hypnotic induction procedure and the eight practise suggestions described above. They were informed that practise would help them respond more effectively during posttesting, but were given no information aimed at changing their attitudes or their cognitive responses to suggestion. A group of no treatment control subjects simply filled out personality questionnaires during Session 2. Practise alone and control subjects were posttested in the same manner as those in the training groups.

Hypotheses

The general and most significant finding of the modification research has been the successful enhancement of suggestibility through training. It was predicted that training would lead to increments even when, as in the present study, suggestibility involved an index of

perceived involuntariness. This was considered a reasonable prediction seeing as perceived involuntariness was modified significantly in studies not necessarily designed to optimize suggestibility but where expectation was manipulated (e.g., Spanos & Gorassini, in press), and seeing as related kinds of perceptions were significantly modified in past optimization research (Cronin et al., 1975; Diamond et al., 1975; Katz, 1979; Sachs & Anderson, 1967).

Past studies have also demonstrated the effectiveness of presenting a model who merely performed appropriate overt behaviour (Bottó et al., 1977; Devoge & Sachs, 1973; Klinger, 1970) or a model who both performed overt behaviour and described the cognitive strategies necessary for producing credible hypnotic perceptions (Cronin et al., 1975; Diamond, 1972; Katz, 1979). These procedures likely led to enhanced understanding of expectations in past studies. In the current study, expectations were fairly lengthy and detailed, and devices meant to enhance understanding of them were thought to be of particular importance. On this basis, it was predicted that the information plus model treatment would lead to greater increments in suggestibility than would the information without model treatment.

The practise alone and control conditions, on the other hand, were expected to lead to no such increments because they provided no explicit information designed to change attitudes and correct expectations.

Provision was also made to assess the effects of initial suggestibility levels on posttest suggestibility. This analysis was primarily exploratory since no clear pattern of results has emerged from past research. In only one study, for example, was pretest and posttest suggestibility reported (Kinney & Sachs, 1974). While it was found that

pretest differences carried over to posttest sessions, only objective suggestibility scores were reported.

Finally, it was predicted that training procedures would lead to involuntariness in response to novel suggestions (i.e., suggestions for which no training was provided). This was expected because the skills inculcated through training were designed to apply to the wide range of suggestions commonly presented on tests of suggestibility.

Method

Subjects

One hundred and twenty low and medium suggestible introductory psychology students (64 females, mean age = 19.47, range = 17 to 26; 56 males, mean age = 19.91, range = 18 to 31) were selected for the experiment. In exchange for their participation in four sessions, they received course credit. A breakdown of subjects' sex by condition is given in table 2.

Procedure

Following the pretest session, subjects were randomly assigned to four conditions with the restriction of an equal number of initially low and medium suggestibles in each condition. All treatments were administered by the same male experimenter in a single one hour session. All verbal instructions were presented over a tape recorder.

Information plus model plus practise. Following initial greetings, the subject was presented with tape recorded information aimed at overturning potentially negative attitudes toward hypnosis (e.g., "Hypnosis does not involve a loss of either control or consciousness, and does not involve trances.") and inducing a positive attitude (e.g., "Hypnosis actually involves a skill that is within the full control of the subject."; "It is a skill that anyone can learn and master if given proper instructions and enough practise."). (A transcript of all information presented to subjects in this condition during the treatment session is given in appendix A.) The positive information used was similar to that used by Cronin et al., (1971) and by Diamond (1972; Diamond et al., 1975). The positive information was elaborated with

Table 2

Sex of Participants

Treatment	Suggestibility			
	Low		Medium	
	Male	Female	Male	Female
Control	7	8	6	9
Practise alone	7	8	8	7
Information: No model	7	8	6	9
Information: Model	8	7	7	8

information on what the skill at responding to hypnotic suggestions actually involves. It was defined as the act of engrossing oneself in a make-believe situation. Several analogies were presented to clarify this definition:

You are probably familiar with the Charlie Brown comic strip. In it, Charlie Brown's dog, Snoopy, is often pictured sitting on his doghouse wearing a helmet and a scarf, paws outstretched, and gritting his teeth. Snoopy gets deeply involved in a make-believe situation. He imagines himself to be in a situation in which he is a World War I flying ace in the air over Germany in hot pursuit of the Red Baron. He gets so involved in this situation that, for the moment, he actually believes he's flying an airplane somewhere over Germany. He simply forgets that he's really a dog on a doghouse.... According to modern psychology's definition of hypnosis, Snoopy was hypnotized because he was so preoccupied with his imaginings of the make-believe situation that he forgot they were make-believe.

Subjects were then told that the make-believe situations that they were to adopt were provided by the hypnotist through suggestion:

What are you to make believe? ... You will soon be presented some suggestions.... It is these suggestions that will provide you with the make-believe situation that you are to involve yourself in.

Following this, subjects were informed that they would have the opportunity to respond to several suggestions, the first of which would be for arm rising. (The suggestions presented in the training session are transcribed in appendix B.) Before receiving the arm rising suggestion, however, they were given explicit information concerning

what the suggestion would say, how to interpret it, and how to execute the expected task:

The suggestion will specifically tell you that your arm is a hollow balloon being pumped up with helium... and that it's rising into the air by itself. In response ... you must do everything that is required of someone making believe such a thing. You must lift your arm up and you must imagine that the arm is really a hollow balloon that is being pumped full of helium and rising by itself. You must become very deeply involved in the make-believe and actually make it seem real.... Rivet your attention on the hollow arm, its lightness, the fact that it's going up by itself, and so on. Don't imagine anything or pay attention to anything that is unrelated to the make-believe situation.

Following the presentation of this information, the videotape of the model was presented. The model (a female in her early twenties) was described to subjects as someone who had been initially unresponsive to test suggestions, but who had learned the cognitive skills required to respond successfully. The videotaped presentation was divided into two phases. During the first, the model responded to the practise suggestion that the subject was about to receive. The model verbalized suggestion-appropriate perceptions as she responded. (These verbalizations are transcribed in appendix B.) For example, during her response to the arm rising suggestion, she said:

Oh, it feels hollow. I can feel it being pumped up. Yes, it's getting lighter. It's really light now. It feels like it's going up. It's going up. It just keeps getting lighter. It's light and going up by itself.

During the second phase, the model was shown being interviewed post-experimentally about her experiences. The interview focused on how one should properly interpret suggestions and on what to do to intensify the credibility of perceptions associated with the make-believe situation. (Transcripts of the interviews are given in appendix C.)

Following the videotape presentation, subjects were asked to write a brief summary of what was expected of them in response to the arm rising suggestion and then given a maximum of 5 minutes to do so. The summaries were then rated for accuracy and completeness. A report was considered accurate and complete if it contained (a) the notion that the expected task involved adoption of the suggested definition of self and situation; (b) the notion that one must become absorbed in the selves and situations suggested; and (c) the proper application of these general expectations to the arm rising suggestion specifically. Ratings ranged from "contained none of the required information" (scored 0) to "contained all of the required information" (scored 3). If a rating equalled 3, subjects were told: "Good answer!". In cases where ratings were less than 3, the deficiencies in the answer were pointed out and any further difficulties were cleared up.

Following this, subjects were administered the arm rising suggestion. Overt response to the suggestion was scored dichotomously by the experimenter as either "passed" or "failed" (e.g., for arm rising, a "pass" required an upward movement of the extended arm of a minimum of six inches).

The procedure involved in presenting each of the next three suggestions (i.e., hand lock, book hallucination, amnesia) was similar

to that used with the arm rising suggestion, with the exception that the questionnaire testing the subject's understanding of expectations was excluded. Hence, before each of the suggestions, subjects were presented with information on how to interpret and respond to the specific suggestion, followed by the videotape of the model responding to the suggestion and being interviewed, followed by the actual presentation of the suggestion to the subject.

Following their response to the fourth test suggestion, subjects completed two subjective experience questionnaires. The first assessed the degree to which subjects had the experiences called for by each suggestion (e.g., for arm rising: the extent to which the arm felt light) and the second assessed the extent to which the response called for was perceived as involuntary. For both questionnaires, the subscales associated with each suggestion were scored from "not at all" (scored 0) to "to a great degree" (scored 3).

In the final phase, subjects were advised that they would be presented with four novel suggestions in the absence of either response facilitating information or a model. The importance of being able to apply the skills learned during training to any suggestions was stressed, and the novel suggestions were described as an initial test of the skills' breadth. The suggestions were then administered (i.e., head lowering, body immobility, voice hallucination, and amnesia), one after the other, with sufficient time left in between for the subject to execute a full response. Overt and subjective responses to these were scored in the same manner as previously. Following completion of the subjective response questionnaires, subjects were advised that in their

remaining sessions, they would be given two additional scales of hypnotic suggestibility and that their task in these sessions would be to respond to test suggestions in accordance with training.

Information plus practise: No model. The only difference between this treatment and the previous one was the fact that no videotape of a model was presented before suggestions.

Practise alone. These subjects were informed that deepening their level of hypnosis would lead to enhanced suggestibility. Following this introduction, they were administered a hypnotic induction equated for length with the information presented to the subjects in the training groups. They were also administered the first four practise suggestions interspersed with "sleepy-drowsy" suggestions, then answered the subjective experience questionnaires, and then were administered the second four practise suggestions. After the last suggestion, subjects again responded to the two subjective experience questionnaires.

(Information presented to practise alone subjects is given in appendix D.)

No treatment control. Subjects in this group spent an hour responding to standardized personality inventories. They were informed only that the study involved assessing the relationship between suggestibility and personality.

Subjects in all conditions received their first posttest (session 3) within one week of the treatment session (session 2). The last posttest (session 4) was administered within one week of the first posttest. Subjects were pretested and posttested by experimenters other than the one who administered the treatment, and these experimenters were blind

to the subjects' treatment condition. The suggestibility scales used for pre and posttesting were administered via tape recording to subjects in small groups.

Suggestibility Measures

On the pretest, and on the first of the posttests, hypnotic suggestibility was assessed with the Carleton University Responsiveness to Suggestion Scale (CURSS; Spanos et al., in press). The CURSS is a seven item scale that contains motor (e.g., arm rising), challenge (e.g., arm rigidity), and cognitive (e.g., visual hallucination, amnesia) test suggestions. The CURSS can be administered to subjects either individually or in groups. Test-retest reliability for the CURSS is high and it correlates substantially with other standardized scales of hypnotic suggestibility (Spanos, Radtke, Hodgins, Bertrand, Stam, & Dubreuil, 1982).

Following their response to all seven suggestions, subjects rated several aspects of their response to each suggestion. On the basis of these ratings, three CURSS suggestibility scores were derived for each subject. CURSS:O (objective) scores reflected the number of suggestions to which subjects made the appropriate overt response, and varied from 0 (no suggestions "passed") to 7 (all suggestions "passed"). CURSS:S (subjective) scores reflected the extent to which subjects had the subjective experiences called for by each suggestion. Each suggestion is associated with a four item subscale. For instance, the subscale for the arm rising suggestion is as follows: "During this suggestion, my arm felt light: (a) not at all; (b) to a slight degree; (c) to a moderate degree; (d) to a great degree." Alternatives (a) through (d)

are scored 0 through 3 respectively, and scores on the seven subscales are summed to yield a CURSS:S score that can range from 0 to 21.

After completing the CURSS:S dimension, subjects rated the extent to which they perceived their responses to each suggestion as involuntary: "During this suggestion, my arm felt like it rose in the air by itself: I experienced this (a) not at all; (b) to a slight degree; (c) to a moderate degree; (d) to a great degree." A CURSS:O-I

(objective-involuntariness) score was obtained for each subject by combining objective and involuntariness ratings. Thus a subject who "passed" a suggestion objectively and who chose alternatives (c) or (d) on the above involuntariness scale received one point on the O-I scale. A subject who did not "pass" the suggestion using the objective criterion received a 0 for that suggestion on the O-I dimension regardless of his involuntariness rating. Similarly, a subject who chose alternatives (a) or (b) on the involuntariness scale received a 0 O-I score for that suggestion regardless of objective performance. In short, CURSS:O-I scores reflect the number of suggestions that were objectively passed and experienced as at least moderately involuntary. These scores ranged from 0 to 7.

For their second posttest session, all subjects were administered a 10-item version of the Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962) modified for group administration. On the modified scale the anosmia and the negative visual hallucination items from the full 12-item version of the SHSS:C were dropped, and several items were altered to allow subjects to write rather than speak their answers. Following their response to the

test suggestions, subjects scored the objective, subjective, and involuntariness aspects of their response to each suggestion using the subscale format described above for the CURSS. Thus, SHSS:C/O, SHSS:C/S, and SHSS:C/O-I scores were obtained for each subject.

Attitude Measure

Prior to the suggestibility pretest and again prior to each suggestibility posttest, all subjects were administered a 14-item attitudes toward hypnosis questionnaire (see appendix E). Half of the items were keyed so that agreement indicated a positive attitude toward hypnosis (e.g., "I find the whole idea of becoming hypnotized an attractive prospect.") and half were keyed so that agreement indicated a negative attitude (e.g., "Those who are easily hypnotized are weak people."). Each item was scored on a seven point Likert type scale so that relatively high scores always indicated more positive attitudes. A single attitude score was obtained for each subject by summing across the items.

Results

Practise Suggestions

Subjects in the information plus model, information without model, and practise alone conditions received two blocks of four practise suggestions during their treatment session. A $3 \times 2 \times 2$ (treatments x suggestibility x blocks) mixed analysis of variance (ANOVA; summarized in table 3) on overt response scores yielded a significant treatment x blocks interaction, $F(2, 84) = 5.01, p < .01$. An analysis of simple effects was conducted, and the relevant means are shown in table 4. The simple main effect of treatments at block 1 was significant, $F(2, 84) = 57.96, p < .01$. Newman-Keuls post hoc comparisons indicated that information plus model subjects obtained higher overt response scores than information without model subjects who in turn obtained significantly higher scores than practise alone subjects. The simple main effect of treatments at block 2 was also significant, $F(2, 84) = 35.60, p < .01$; and post hoc comparisons indicated that, on this block, the overt response scores of information plus model, and information without model subjects failed to differ significantly. Subjects in both these treatments obtained significantly higher overt scores than those in the practise alone treatment.

The simple effects of blocks was not significant in the practise alone treatment, but was significant in both the model treatment, $F(1, 84) = 14.86, p < .01$; and the information without model treatment, $F(1, 84) = 18.80, p < .01$. Practise alone subjects maintained their relatively low level of overt response across the two practise blocks. Information with model and information without model subjects showed

Table 3

ANOVA Summary Table for Treatment Session

Objective Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	2.45	2.34
Treatment (B)	2	96.72	92.18**
A x B	2	5.72	5.45*
error	84	1.05	
Block (C)	1	6.81	23.69**
A x C	1	.67	2.34
B x C	2	1.44	5.01*
A x B x C	2	.51	1.76
error	84	.29	

* $p < .01$ ** $p < .001$

Table 4
Treatment Session Objective Score Means for the
Treatment x Block Interaction

Treatment		Block 1	Block 2
Practise alone	<u>M</u>	1.07a	1.03a
	<u>sd</u>	.87	1.03
Information: No model	<u>M</u>	3.20b	2.67b
	<u>sd</u>	.85	.96
Information: Model	<u>M</u>	3.77c	3.17b
	<u>sd</u>	.50	.83

Note: Within-column means sharing a similar subscript fail to differ at $p < .05$.

relatively high levels of overt response on both blocks, but slightly lower levels on the second block than on the first.

A treatment x suggestibility x blocks ANOVA (summarized in table 5) on subjective practise scores showed a significant effect for treatments $F(2, 84) = 10.38, p < .001$; and a significant effect for blocks, $F(1, 84) = 7.64, p < .01$. No interaction approached significance. Post hoc comparisons on the treatment effect means indicated that information plus model subjects ($M = 6.03$) had higher subjective scores than practise alone subjects ($M = 3.67$). The mean for subjects who received information without the model ($M = 5.00$) fell between but did not differ significantly from the other two. The significant effect for blocks indicated that subjective scores were significantly higher on the second block ($M = 5.19$) than on the first ($M = 4.61$).

The three way ANOVA (summarized in table 6) on objective-involuntariness (O-I) scores yielded a significant treatment effect, $F(2, 84) = 7.94, p < .001$. None of the interactions were significant. Post hoc comparisons on the treatment means indicated that information with a model ($M = 1.73$) and information without a model ($M = 1.32$) produced significantly higher O-I scores than did practise alone ($M = .68$). The two information treatments did not differ significantly from one another.

During the treatment session, subjects in the two information conditions were tested on their understanding of all instructions given prior to the administration of the first test suggestion. A 2×2 (suggestibility level x treatments) ANOVA on understanding scores yielded no effects approaching significance. The relevant means are shown in table 7.

Table 5
ANOVA Summary Table for Treatment Session
Subjective Scores

Source	df	MS	F
Suggestibility (A)	1	61.25	4.91*
Treatment (B)	2	129.34	10.38***
A x B	2	.65	< 1
error	84	12.46	
Block (C)	1	11.25	7.64**
A x C	1	1.61	1.09
B x C	2	1.95	1.32
A x B x C	2	.51	< 1
error	84	1.47	

* $p < .05$

** $p < .01$

*** $p < .001$

Table 6
ANOVA Summary Table for Treatment Session
O-I Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	11.76	5.56*
Treatment (B)	2	16.77	7.94**
A x B	2	.74	< 1
error	84	2.38	
Block (C)	1	.56	1.5
A x C	1	.09	< 1
B x C	2	.24	< 1
A x B x C	2	.74	2.04
error	84	.36	

*p < .05

**p < .001

Table 7
Mean Understanding Scores

Treatment,	Suggestibility	
	Low	Medium
Information: No model	<u>M</u> 2.27	2.20
	<u>sd</u> .46	.41
Information: Model	<u>M</u> 2.20	2.20
	<u>sd</u> .56	.56

In summary, the information plus model treatment always produced significantly higher objective and subjective practise scores than did practise alone. The means for the information without model group fell between those for the other two treatments, and were more similar to those of the model treatment than the practise alone treatment. Subjects in the two information conditions understood the instructions leading up to the first suggestion equally well.

Pretest to Posttest 1 Changes

Changes from pretest to posttest 1 on CURSS:Q scores for the four treatments were assessed with a 4 x 2 x 2 mixed ANOVA (summarized in table 8). The 4 treatments and the low/medium initial suggestibility level were between subjects factors and the pretest/posttest session was a within subjects factor. The treatments x sessions interaction was highly significant, $F(3, 112) = 30.60, p < .001$; and analyses of simple main effects were conducted. The relevant means are shown in table 9. The simple main effect of sessions was significant in the model treatment, $F(1, 112) = 100.67, p < .001$; and in the information without model treatment, $F(1, 112) = 45.67, p < .001$. In both of these conditions, subjects showed much higher CURSS:Q scores after the treatment than before it. The simple main effect for sessions was not significant in the practise alone condition but was significant in the control condition, $F(1, 112) = 5.61, p < .05$. Practise alone subjects showed no significant pretest to posttest change in CURSS:Q scores, while controls showed a slight but significant decrease in these scores from pretest to posttest.⁴

Table 3
ANOVA Summary Table for CURSS:0 Scores

Source	df	MS	F
Suggestibility (A)	1	116.20	57.54*
Treatment (B)	3	52.68	26.08*
A x B	3	2.28	1.13
error	112	2.02	
Session (C)	1	67.20	51.25*
A x C	1	37.60	28.68*
B x C	3	44.06	33.60*
A x B x C	3	1.55	1.18
error	112	1.31	

*p < .001

Table 9
Mean CURSS:Q Scores for the Treatment x Session
Interaction

Treatment		Session	
		Pretest	Posttest
Control	<u>M</u>	2.17a	1.47a
	<u>sd</u>	1.34	1.61
Practise alone	<u>M</u>	2.23a	2.20b
	<u>sd</u>	1.41	1.63
Information: No model	<u>M</u>	2.40a	4.40c
	<u>sd</u>	1.22	1.85
Information: Model	<u>M</u>	2.30a	5.27d
	<u>sd</u>	1.32	1.71

Note: Within-column means sharing a similar subscript fail to differ at $p < .05$.

The simple main effect for treatments at the pretest did not approach significance ($F < 1$). However, the simple main effect for treatments on the posttest was highly significant, $F(3, 112) = 47.75$, $p < .001$. As indicated in table 9, all four means differed significantly from one another. Subjects in the model treatment obtained the highest CURSS:O scores and controls obtained the lowest. The treatment x session interaction, plotted separately for low and medium suggestible subjects, is shown in figure 2.

Table 10 shows the number of initially low and initially medium suggestibles in each treatment whose CURSS:O scores either decreased, stayed the same, or increased. Subjects in the information conditions were much more likely to exhibit an increment than were subjects in the practise alone or the control conditions.

On the CURSS:O scale, high suggestibility is conventionally defined as a score of 5 or above (Spanos et al., in press). Table 11 shows the number of subjects in each treatment that scored as high suggestibles on posttest 1. Only one initially low control subject and none of the initially low practise alone subjects scored in the high suggestibility range on the posttest. On the other hand, the majority of initially low information plus model subjects scored as high suggestibles on posttest 1.

A $4 \times 2 \times 2$ ANOVA (summarized in table 12) with the same independent variables as above was conducted on CURSS:S scores. The treatment x sessions interaction was again significant, $F(3, 112) = 13.00$, $p < .001$; and analyses of simple main effects were conducted. The relevant means are given in table 13. Subjects given modelling, $F(1, 112) =$

Figure 2. Pretest and posttest CURSS:O means for initially low and medium susceptibles in each treatment. A = information with model; B = information without model; C = practise alone; D = control.

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Table 10
 Number of Subjects Exhibiting Decreases, No Change, and
 Increases in CURSS:0 Scores

Change	Control	Practise alone	Information: No model	Information: Model
Low Suggestibles				
Decrement	3 (20)	4 (27)	0 (0)	0 (0)
No change	7 (47)	4 (27)	4 (27)	1 (07)
+1	3 (20)	4 (27)	2 (13)	0 (0)
+2	0 (0)	3 (20)	1 (07)	2 (13)
+3	1 (07)	0 (0)	2 (13)	2 (13)
+4	1 (07)	0 (0)	2 (13)	3 (20)
+5	0 (0)	0 (0)	3 (20)	5 (33)
+6	0 (0)	0 (0)	0 (0)	1 (07)
+7	0 (0)	0 (0)	1 (07)	1 (07)
Medium Suggestibles				
Decrement	8 (53)	8 (53)	1 (07)	0 (0)
No change	3 (20)	3 (20)	4 (27)	3 (20)
+1	3 (20)	3 (20)	4 (27)	3 (20)
+2	0 (0)	0 (0)	2 (13)	3 (20)
+3	1 (07)	1 (07)	3 (20)	4 (27)
+4	0 (0)	0 (0)	1 (07)	2 (13)

Note: Numerals in parentheses represent the percentage of subjects per group exhibiting the given change.

Table 11
 Number of Initially Low and Initially Medium Suggestible
 "Created Highs" on Posttest 1

Treatment	Initial Suggestibility	
	Low	Medium
Control	1 (7)	2 (13)
Practise alone	0 (0)	2 (13)
Information: No model	6 (40)	8 (53)
Information: Model	10 (67)	11 (73)

Note: Numerals in parentheses represent the percentage of
 "created highs" in each group.

Table 12
ANOVA Summary Table for CURSS:S Scores

Source	df	MS	F
Suggestibility (A)	1	663.34	29.90*
Treatment (B)	3	153.88	6.94*
A x B	3	23.18	1.04
error	112	22.17	
Session (C)	1	139.54	17.60*
A x C	1	13.54	1.71
B x C	3	103.05	13.00*
A x B x C	3	.12	< 1
error	112	7.93	

*p < .001

Table 13
Mean CURSS:S Scores for the Treatment x Session
Interaction

Treatment		Session	
		Pretest	Posttest
Control	<u>M</u>	5.73a	5.53a
	<u>sd</u>	2.94	4.20
Practise alone	<u>M</u>	6.27a	5.53a
	<u>sd</u>	2.94	4.26
Information: No model	<u>M</u>	7.37a	9.37b
	<u>sd</u>	3.66	4.66
Information: Model	<u>M</u>	6.17a	11.20b
	<u>sd</u>	3.91	6.21

Note: Within-column means sharing a similar subscript fail to differ at $p < .05$.

47.93, $p < .001$, and those given information without modelling, $F(1, 112) = 7.57$, $p < .05$; showed significant pretest to posttest increments in CURSS:S scores. Practise alone subjects showed no significant pretest to posttest CURSS:S changes.

The simple main effect for treatments was not significant at the pretest ($F < 1$), but was highly significant at the posttest, $F(3, 112) = 10.30$, $p < .01$. Post hoc comparisons on the posttest means indicated that the model and information without model treatments failed to differ significantly from one another. However, both of these conditions produced significantly higher CURSS:S scores than did the practise alone or the control treatments. Subjects in the latter two treatments failed to differ from one another. The treatment x session interaction, plotted separately for low and medium suggestible subjects is shown in figure 3.

Table 14 shows the number of subjects whose CURSS:S scores either decreased, stayed the same, or increased from pretest to posttest. Scores of the majority of control and practise alone subjects either went down or stayed the same. Increases were much more likely in the information conditions, particularly among medium suggestibles in the information plus model treatment.

A $4 \times 2 \times 2$ ANOVA (summarized in table 15) on CURSS:O-I scores also yielded a significant treatment x session interaction, $F(3, 112) = 9.79$, $p < .001$; and the relevant means are given in table 16. Analyses of simple main effects indicated that only the model treatment showed a significant increment on CURSS:O-I scores from pretest to posttest, $F(1, 112) = 51.53$, $p < .001$. Once again, simple main effects for

Figure 3. Pretest and posttest CURSS:S means for initially low and medium susceptibles in each treatment. A = information with model; B = information without model; C = practise alone; D = control.

Table 14
 Number of Subjects Exhibiting Decreases, No Change, and
 Increases in CURSS:S Scores

Change	Control	Practise- alone	Information: No model	Information: Model
Low Suggestibles				
Decrement	8 (53)	9 (60)	3 (20)	0 (0)
No change	3 (20)	1 (07)	1 (07)	2 (13)
+1 to +3	2 (13)	1 (07)	5 (33)	6 (40)
+4 to +6	2 (13)	4 (27)	4 (27)	0 (0)
+7 to +9	0 (0)	0 (0)	1 (07)	3 (20)
+10 to +12	0 (0)	0 (0)	1 (07)	4 (27)
+13 to +15	0 (0)	0 (0)	0 (0)	0 (0)
+16 to +18	0 (0)	0 (0)	0 (0)	0 (0)
+19 to +21	0 (0)	0 (0)	0 (0)	0 (0)
Medium Suggestibles				
Decrement	6 (40)	9 (60)	5 (33)	3 (20)
No change	4 (27)	2 (13)	3 (20)	0 (0)
+1 to +3	4 (27)	3 (20)	3 (20)	3 (20)
+4 to +6	0 (0)	0 (0)	2 (13)	4 (27)
+7 to +9	1 (07)	1 (07)	1 (07)	2 (13)
+10 to +12	0 (0)	0 (0)	1 (07)	3 (20)
+13 to +15	0 (0)	0 (0)	0 (0)	0 (0)
+16 to +18	0 (0)	0 (0)	0 (0)	0 (0)
+19 to +21	0 (0)	0 (0)	0 (0)	0 (0)

Note: Numerals in parentheses represent percentages of subjects per group exhibiting the given change.

Table 15

ANOVA Summary Table for CURSS:O-I Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	84.02	27.98**
Treatment (B)	3	13.34	4.44*
A x B	3	2.67	< 1
error	112	3.00	
Session (C)	1	38.40	24.94**
A x C	1	.15	< 1
B x C	3	15.08	9.79**
A x B x C	3	.25	< 1
error	112	1.54	

*p < .01

**p < .001

Table 16

Mean CURSS:O-I Scores for the Treatment x Session

Treatment	Interaction	
	Session	
	Pretest	Posttest
Control	<u>M</u> .83a	1.23a
	<u>sd</u> 1.05	1.48
Practice alone	<u>M</u> 1.00a	1.23a
	<u>sd</u> 1.17	1.57
Information: No model	<u>M</u> 1.47a	1.73a
	<u>sd</u> 1.38	1.80
Information: Model	<u>M</u> .90a	3.20b
	<u>sd</u> 1.09	2.70

Note: Within-column means sharing a similar subscript fail to differ at $p < .05$.

for treatments was nonsignificant at the pretest ($F < 1$) but was significant at the posttest, $F(3, 112) = 8.65, p < .01$. Subjects in the model treatment had significantly higher CURSS:0-I posttest scores than did those in the remaining three treatments. The means for the remaining treatments did not differ significantly from one another. The treatment x session interaction, plotted separately for low and medium suggestibles, is shown in figure 4.

Table 17 shows the number of subjects in each group whose CURSS:0-I scores either decreased, stayed the same, or increased from pretest to posttest 1. As in the case of objective and subjective scores, subjects were more likely to exhibit increases within the information conditions. Increases were particularly pronounced for initially medium suggestibles in the information plus model condition. In this group, 60 per cent of subjects exhibited a CURSS:0-I increment of 3 or more.

Treatment Differences at Posttest 2

Separate 4 x 2 (treatments x initial suggestibility) between subjects ANOVA yielded significant treatment effects for the SHSS:C/O, $F(3, 112) = 15.34, p < .001$; the SHSS:C/S, $F(3, 112) = 5.67, p < .01$; and the SHSS:C/O-I, $F(3, 112) = 3.56, p < .05$. The ANOVA summary tables are shown in tables 18, 19, and 20 respectively. The relevant means are shown in table 21. Mean magnitudes were ordered in the same direction in the case of each dependent variable: no treatment control < practise alone < information without model < information with model. Post hoc comparisons indicated no significant differences between controls and practise alone subjects on any of the dependent measures. Moreover, controls and practise alone subjects had significantly lower

Figure 4. Pretest and posttest CURSS:O-I means for initially low and medium susceptibles in each treatment. A = information with model; B = information without model; C = practise alone; D = control.

Table 17^o

Number of Subjects Exhibiting Decreases, No Change, and
Increases in CURSS:O-I Scores

Change	Control	Practise alone	Information: No model	Information: Model
Low Suggestibles				
Decrement	1 (07)	3 (20)	4 (27)	0 (0)
No change	8 (53)	8 (53)	4 (27)	5 (33)
+1	4 (27)	2 (13)	5 (33)	5 (33)
+2	2 (13)	1 (07)	1 (07)	0 (0)
+3	0 (0)	1 (07)	0 (0)	0 (0)
+4	0 (0)	0 (0)	1 (07)	0 (0)
+5	0 (0)	0 (0)	0 (0)	4 (27)
+6	0 (0)	0 (0)	0 (0)	1 (07)
+7	0 (0)	0 (0)	0 (0)	0 (0)
Medium Suggestibles				
Decrement	4 (27)	3 (20)	6 (40)	1 (07)
No change	7 (47)	5 (33)	6 (40)	3 (20)
+1	2 (13)	5 (33)	0 (0)	1 (07)
+2	0 (0)	1 (07)	1 (07)	1 (07)
+3	1 (07)	0 (0)	0 (0)	3 (20)
+4	0 (0)	1 (07)	2 (13)	4 (27)
+5	0 (0)	0 (0)	0 (0)	1 (07)
+6	1 (07)	0 (0)	0 (0)	1 (07)
+7	0 (0)	0 (0)	0 (0)	0 (0)

Note: Numerals in parentheses represent percentages of subjects per group exhibiting the given change.

Table 18.

ANOVA Summary Table for SHSS:C/O Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	39.68	5.69*
Treatment (B)	3	106.90	15.34**
A x B	3	3.48	< 1
error	112	6.97	

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

Table 19

ANOVA Summary Table for SHSS:C/S Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	494.10	10.81*
Treatment (B)	3	259.26	5.67**
A x B	3	28.18	< 1
error	112	45.70	

* $p < .001$

Table 20

ANOVA Summary Table for SHSS:C/O-I Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	104.53	13.26**
Treatment	3	28.10	3.56*
A x B	3	4.02	< 1
error	112	7.88	

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

Table 21

Treatment Means for SHSS:C/O, SHSS:C/S, and SHSS:C/O-I
Scores

SHSS:C dimension		Treatment			
		Control	Practise alone	Information: No model	Information: Model
SHSS:C/ <u>O</u>	<u>M</u>	3.60a	4.10a	6.43b	7.56b
	<u>sd</u>	2.75	2.81	2.80 ✓	2.31
SHSS:C/ <u>S</u>	<u>M</u>	8.78a	10.30ab	13.57bc	15.20c
	<u>sd</u>	7.24	6.23	7.17	7.26
SHSS:C/ <u>O-I</u>	<u>M</u>	2.13a	2.23ab	3.43b	4.13b
	<u>sd</u>	2.86	2.50	2.89	3.42

Note: Within-row means sharing a similar subscript fail to differ
at $p < .05$.

scores than information plus model subjects on each of the dependent measures. Information without model subjects did not differ significantly from information plus model subjects on any of the dependent variables. However, on the SHSS:C/S, information without model subjects also failed to differ from practise alone subjects, and on the SHSS:C/O-I, information without model subjects failed to differ from either controls or practise alone subjects.

On the SHSS:C, high suggestibility is conventionally defined as a score of 8 or above (Weitzenhoffer & Hilgard, 1962). Table 22 shows the number of initially low and initially medium suggestible subjects in each treatment who scored as high suggestibles on both the CURSS:O and the SHSS:C/O posttests. The information plus model treatment transformed over half the initially low suggestibles and more than two thirds of the initially medium suggestibles into high suggestibles on both scales. In the control and practise alone treatments, none of the initially low suggestibles and very few of the initial mediums were transformed into high suggestibles.

Novel SHSS:C Items

The version of the SHSS:C used, contained four test suggestions that were rather different from those on which subjects had practiced (i.e., hypnotic dream, age regression, taste hallucination, and post-hypnotic amnesia). In order to insure that treatment effects had generalized to novel items, suggestibility scores were calculated for each subject using only these four suggestions. Separate 2 x 4 (initial suggestibility x treatments) ANOVA on O, S, and O-I scores yielded a significant treatment effect in each case: O scores, $F(3, 112) = 8.09$,

Table 22
 Number of Initially Low and Initially Medium Suggestible
 "Created Highs" on Both Posttests 1 and 2

Treatment	Initial Suggestibility	
	Low	Medium
Control	0 (0)	2 (13)
Practise alone	0 (0)	2 (13)
Information: No model	6 (40)	6 (40)
Information: Model	8 (53)	10 (67)

Note: Numerals in parentheses represent the percentage of
 "created highs" in each group.

$p < .001$; S scores, $F(3, 112) = 4.83$, $p < .01$; O-I scores, $F(3, 112) = 2.66$, $p = .051$. The ANOVA summary tables are shown in tables 23, 24, and 25 respectively. The relevant means are given in table 26. As in earlier analyses, information plus a model led to significantly higher scores on each dependent variable than did the control or practise alone treatments.⁵

Created vs. "Natural" Highs

Perusal of tables 9 and 16 shows that even after training, CURSS:O scores were substantially higher than CURSS:O-I scores. In other words, subjects who obtained high overt response scores as a result of training (i.e., created highs) did not necessarily experience their responses as occurring involuntarily. However, higher CURSS:O than CURSS:O-I scores are also characteristic of high suggestibles who obtained their high CURSS:O scores without training (i.e., natural highs; Spanos et al., in press). In order to determine whether created and natural highs differed on subjective aspects of response, we selected those initially low and medium suggestibles from the information plus model, and the information without model treatments who obtained CURSS:O scores of 5 or above on posttest 1, and SHSS:C/O scores of 8 or above on posttest 2. The 16 initially medium suggestible subjects who met this criterion were matched on the basis of CURSS:O scores with natural highs who had been routinely tested in our laboratory during the same academic year for participation in a wide variety of hypnosis experiments. Separate one-way ANOVA indicated no significant differences among the three groups on CURSS:S scores, but a significant difference on CURSS:O-I scores, $F(2, 43) = 3.66$, $p < .05$. The ANOVA summary tables are shown

Table 23

ANOVA Summary Table for SHSS:C/O Novel Item Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	2.13	1.30
Treatment (B)	3	13.26	8.09*
A x B	3	.96	< 1
error	112	1.64	

* $p < .001$

Table 24

ANOVA Summary Table for SHSS:C/S Novel Item Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	36.30	4.83*
Treatment (B)	3	35.29	4.70**
A x B	3	8.47	1.13
error	112	7.52	

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

Table 25

ANOVA Summary Table for SHSS:C/O-I Novel Item Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility (A)	1	4.03	2.99
Treatment (B)	3	3.59	2.66*
A x B	3	1.19	< 1
error	112	1.35	

* $p = .051$

Table 26

Treatment Means for Novel Item Scores on the O, S, and O-I
Dimensions of the SHSS:C

		Treatment			
SHSS:C		Control	Practise	Information:	Information:
dimension			alone	No model	Model
<u>O</u>	<u>M</u>	1.20a	1.47a	2.23b	2.63b
	<u>sd</u>	1.30	1.31	1.31	1.30
<u>S</u>	<u>M</u>	2.68a	3.71a	4.33ab	5.26b
	<u>sd</u>	2.69	2.35	3.10	2.97
<u>O-I</u>	<u>M</u>	.53a	.60a	1.00ab	1.27b
	<u>sd</u>	1.22	.97	1.05	1.39

Note: Within-row means sharing similar subscripts fail to differ
at $p < .05$.

in tables 27 and 28 respectively. The relevant means are given in table 29. Post.hoc comparisons indicated that natural highs failed to differ significantly from either initially low or initially medium created highs on the CURSS:O-I scale. However, initially medium created highs obtained higher CURSS:O-I scores than did initially low created highs.⁶

Attitudes

Subjects' attitudes about hypnosis were assessed before the pretest and again before each of the posttests. A 4 x 2 ANOVA on attitudes prior to the pretest indicated no significant effect for treatments (control, $\bar{M}$ = 16.13; practise alone, $\bar{M}$ = 15.83; information without model, $\bar{M}$ = 16.57; information with model, $\bar{M}$ = 17.50). Our major interest was in the degree of attitude change induced by treatments. Therefore, two attitude difference scores were obtained for each subject by subtracting pretest attitude scores from attitude scores at posttest 1 and at posttest 2 respectively. The larger the difference score, the greater the increment in positive attitudes from pretest to posttest. A 4 x 2 (treatments x posttest 1/ posttest 2) ANOVA on these difference scores (summarized in table 30) yielded a main effect for treatments, $F(3, 116) = 6.04$, $p < .001$; and a main effect for posttests, $F(1, 116) = 5.32$, $p < .05$. Post hoc comparisons on the treatment means indicated that subjects given modelling ($\bar{M}$ = 9.58) and those given information without modelling ($\bar{M}$ = 8.43) showed equivalent pretest to posttest increments in positive attitudes. The increments in both of these groups were significantly greater than the increments shown by the practise alone subjects ($\bar{M}$ = 3.73) or the control subjects ($\bar{M}$ = 2.52). The latter two groups failed to differ significantly from one another.

Table 27

ANOVA Table for CURSS:S Scores: Created and
Natural Highs

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility	2	42.93	2.94
error	43	14.62	

Table 28
ANOVA Table for CURSS:O-I Scores: Created
and Natural Highs

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Suggestibility	2	13.66	3.66*
error	43	3.73	

* $p < .05$

Table 29

Posttest 1 CURSS:S and CURSS:O-I Mean Scores for Created
and Natural Highs

CURSS dimension		Initially low suggestibles	Initially medium suggestibles	Natural high suggestibles
CURSS: <u>S</u>	<u>M</u>	12.14a	15.44a	13.25a
	<u>sd</u>	4.75	3.93	2.62
	<u>N</u>	14	16	16
CURSS: <u>O-I</u>	<u>M</u>	3.00a	4.81b	3.44ab
	<u>sd</u>	2.29	2.01	1.46
	<u>N</u>	14	16	16

Note: Within-row means sharing a similar subscript fail to differ
at $p < .05$.

Table 30

ANOVA Table for Attitude Difference Scores

Source	<u>df</u>	<u>MS</u>	<u>F</u>
Treatments (A)	3	720.30	6.04**
error	116	119.31	
Difference score (B)	1	81.67	5.32*
A x B	3	5.48	< 1
error	116	15.36	

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

The posttests main effect indicated that the increment in positive attitudes from pretest to posttest 2 ($M = 6.65$) was significantly larger than the increment from pretest to posttest 1 ($M = 5.48$).

Correlations

Treatments were collapsed and correlation coefficients were computed on O, S, and O-I scores within and between the pretest and the two posttest sessions. Within each session, correlations among O, S, and O-I scores were always highly significant. The relevant correlations are shown in table 31. These ranged in magnitude from $r = .60$ to $r = .92$ with a mean magnitude of $r = .77$. Between session correlations for each suggestibility dimension are shown in table 32. As this table indicates, the correlations between pretest scores and corresponding posttest scores, although significant, were only moderate in magnitude. On the other hand, correlations between posttest scores were higher than correlations between pretest and posttest scores. Moreover, correlations between subjective scores were consistently higher than correlations between objective scores. The relatively low pretest to posttest correlations in all treatments probably reflect the truncation in range produced by the initial selection criterion (i.e., pretest CURSS:O scores below 5). Thus, correlations between subjective scores were higher than those between objective scores because subjective scores were not a selection criterion and were thereby more free to vary on the pretest than were objective scores. By the same token, correlations between posttests were higher than those between pretest and posttest because both posttests were associated with a wider range of scores than was the pretest.

Table 31
Within Session Correlations

	<u>O</u>	<u>S</u>	<u>O-I</u>
At Pretest			
<u>O</u>	—	.71*	.60*
<u>S</u>		--	.74*
<u>O-I</u>			--
At Posttest 1			
<u>O</u>	--	.78*	.69*
<u>S</u>		--	.86*
<u>O-I</u>			--
At Posttest 2			
<u>O</u>	--	.83*	.77*
<u>S</u>		--	.92*
<u>O-I</u>			--

Note: N = 120

*p < .001

Table 32
Between Session Correlations

Dimension	Pre-Post 1	Pre-Post 2	Post 1-Post 2
Treatments Collapsed			
<u>O</u>	.31***	.34***	.79***
<u>S</u>	.56***	.57***	.86***
<u>O-I</u>	.40***	.41***	.79***
Information Plus Model			
<u>O</u>	.29	.27	.84***
<u>S</u>	.67***	.73***	.90***
<u>O-I</u>	.62***	.58***	.82***
Information Without Model			
<u>O</u>	.23	.42*	.70***
<u>S</u>	.55***	.65***	.78***
<u>O-I</u>	.43**	.54***	.74***
Practise Alone			
<u>O</u>	.60***	.34*	.58***
<u>S</u>	.55***	.44**	.90***
<u>O-I</u>	.45**	.41**	.83***

(over)

Table 32 (continued)

Dimension	Pre-Post 1	Pre-Post 2	Post 1-Post 2
		Control	
<u>O</u>	.35*	.43**	.71***
<u>S</u>	.59***	.45**	.85***
<u>O-I</u>	.34*	.09	.77***

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

Discussion

The hypothesis that training would effectively enhance involuntariness was strongly supported. Training procedures designed to enhance the favourability of attitudes toward hypnosis and to clarify task-relevant expectations (i.e., in the information with and without modelling conditions) led to large increases in the incidence of involuntariness. This contrasted sharply with the ineffectiveness of treatments in which no information designed to change attitudes and expectations was introduced (i.e., in the practise alone and control conditions). The effectiveness of training in enhancing objective suggestibility matches the findings reported by several investigators, particularly by Sachs and his associates (Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer et al., 1977). However, in contrast to the earlier studies, in which multiple, loosely standardized training procedures were employed, the present training package involved the administration of a single, one hour procedure. This greater standardization will allow the use of the training package by other investigators.

Results also confirm previous findings demonstrating the effectiveness of training in enhancing subjective aspects of suggestibility (Comins et al., 1975; Diamond et al., 1975; Katz, 1979; Sachs & Anderson, 1967). Moreover, in an extension of the earlier research, perceived involuntariness was measured and included in the O-I index. Even when this dimension was considered, training was found to lead to significant increments in suggestibility. In fact, the O-I scores of the large proportion of training subjects whose objective

suggestibility increased to high levels were indistinguishable from the O-I scores of a comparison group of "natural highs".

Also as predicted, training information plus the provision of the model led to larger increments in suggestibility than did training information alone. The model conveyed information that recapitulated the attitude- and expectancy-relevant information presented by the experimenter. Following Diamond et al.'s (1975) suggestion, it was thought that the redundancy introduced by this measure would probably lead to an enhanced understanding of expectations. This was thought to be a particularly important provision in the present study because of the rather involved information conveyed by the experimenter in the training conditions.

Training effects generalized from block 1 suggestions to block 2, posttest 1, and posttest 2 suggestions. Evidently, then, training led to acquisition of a skill which enabled subjects to produce appropriate responses to a wide range of test suggestions commonly used to test suggestibility. Since no skill was inculcated in either the practise alone or the control conditions, levels of suggestibility remained constant from the pretest to the final posttest.

The findings discussed thus far suggest that levels of "involuntariness" in response to a wide range of novel suggestions can be greatly enhanced with training. When cooperation is secured and task expectations are learned optimally, the overt performance and the internal perceptions of one who is behaving involuntarily are, in a substantial number of cases, rather convincingly produced. This conclusion must, however, be considered in light of an important qualification.

There is always a potential validity problem when measuring mental processes through self-report (Pryor, 1980). Self-reports, like any other form of behaviour, can be influenced by several factors, including the internal events they were designed to reflect, or artifacts such as experimenter expectancy (Rosenthal, 1966). With respect to the present experiment, it is important to ask if self-reports accurately reflected the perceptions of involuntariness they were designed to measure. There is the possibility, for example, that involuntariness ratings were based primarily on compliance in the absence of the belief that responses were, in fact, perceived as involuntary. In the training conditions and in the practise alone condition, but not in the control condition, the experimenter explicitly conveyed the expectation that an enhancement in suggestibility should follow session 2. If compliance was primarily responsible for questionnaire responses, then the enhancement should have occurred in all but the control condition. As it was, increments in rated involuntariness occurred only in response to training. This finding fails to support the notion that compliance was primarily responsible for self-reports. Further research on this question would be valuable. It would be of interest, for instance, to determine if varying expectancy communicated after training responses, but prior to self-report, would effectively alter ratings of involuntariness.

Some investigators have cited moderate to high correlations between pre and posttest suggestibility as evidence for the nonmodifiability of suggestibility (Hilgard, 1965, 1982; Perry, 1977). This view is not correct. For instance, assume that a modification treatment added a very large increment of constant magnitude to the pretest suggestibility

score of every subject. Assume further that no other variables influenced posttest suggestibility. Posttested suggestibility would, of course, be much higher than pretested suggestibility. Nevertheless, the correlation between pretested and posttested suggestibility would be, $r = 1.00$. In short, a large pretest to posttest suggestibility increment and a relatively high pretest to posttest suggestibility correlation are neither mutually exclusive nor indicative of a small treatment effect. This pattern of findings (seen for the subjective and involuntariness scores in the information plus model condition) simply indicates that the treatment tended to produce an effect of constant magnitude across subjects.

Increases in the favourability of attitudes were greater in the training than in the nontraining conditions. This finding suggests that the information designed to enhance general attitudes toward hypnosis (and presented in the training conditions) was effective. It is of interest to note, however, that the two training treatments did not differ in the amount of attitude enhancement produced. This suggests that differences in expectancy and not attitude were responsible for obtained differences in suggestibility accruing between these two groups. It is also noteworthy that all groups exhibited rather large absolute mean attitude score gains, especially from pre- to posttest 1. It is thus likely that a majority of subjects enter the hypnotic situation with rather strong apprehensions about hypnosis, and that their fears are allayed to a great degree even by the kinds of procedures administered typically during tests of hypnotic suggestibility. Yet, even despite the fact that subjects in the

practise alone and control groups experienced an enhancement in attitudes from pre- to posttesting, no corresponding increments in suggestibility were exhibited. Again, this must be due to the fact that expectations were not clarified by the experimenter in either of these conditions. It was also found that favourability increments were greater from pre to posttest 2 than they were from pre to posttest 1 for all groups. Perhaps subjects had apprehensions that were not dispelled even after several sessions of hypnosis. Or, perhaps these changes represent an artifact of the testing situation wherein subjects merely responded to the perception that increasingly favourable attitudes were expected.

Despite its overall effectiveness, even the information plus model group contained recalcitrant individuals who obtained low posttest scores on suggestibility dimensions (particularly on the O-I dimension; and on the attitude questionnaire). It is important to keep in mind, however, that the training procedures were relatively brief and highly standardized. Future studies might profitably focus on such recalcitrant subjects and expose them to further and more individualized training and practise. Subjects who remain recalcitrant despite further training could be compared to both created and natural high suggestibles on a variety of cognitive style variables (e.g., absorption, imagery vividness, daydreaming frequency) as well as attitudes toward hypnosis. There may, in fact, be stable individual differences in attitudinal and cognitive style variables that limit the degree of suggestibility that subjects can attain. If so, these limits are likely to be seen most clearly in subjects who have failed to show suggestibility gains even after extensive and individualized training and practise.

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Future research might also be aimed at more extensively examining the generalizability of treatment induced suggestibility increments. High suggestibility is associated with a number of discrete phenomena that are not routinely assessed on standardized suggestibility scales. These include: (a) disorganized clustering during partial amnesia (Spanos, Radtke, & Stam, 1980); (b) "hidden observer" responding during suggested analgesia (Hilgard, Morgan, & MacDonald, 1975; Spanos & Hewitt, 1980); and, (c) transparent visual hallucinations (Orne, 1959). It would be of interest to compare the frequencies with which created and natural high suggestible subjects enacted such responses.

The study focused specifically on the degree to which subjects perceived involuntariness during the time when they exhibited suggested behaviour. This is distinct from the issue of whether or not long-term beliefs about involuntariness extend beyond the short-term perceptions. It remains an open possibility that subjects in hypnosis experiments largely understand the fact that their "involuntariness" is merely conformity, and therefore do not believe following their performance that suggested responses were actually involuntary. However, some investigators speculate that in many cases, short-term perceptual changes are accompanied by long-term belief changes (Sarbin & Coe, 1972; Spanos & Gorassini, in press; White, 1941). It would be interesting to find out if this is so, and if it is, why. Perhaps many subjects are not aware of why their responses seemed involuntary in the first place. They deal with their uncertainty by searching out and employing plausible "theories" (Nisbett & Ross, 1980). One such explanation that happens to be highly salient in the hypnotic situation suggests that responses that seem involuntary are involuntary.

Summary and Conclusions

For well over a century, the apparent involuntariness of hypnotic subjects has drawn the attention of scientists. The question recently dominating this area of investigation asked whether involuntariness is more aptly described as the product of a special control process or as an act of conformity. Research to date strongly supports the latter view while failing to support the former.

The conformity view may be reduced to two key propositions. One, the ability proposition, states that many waking individuals are able, voluntarily, to give the public performances and produce the private perceptions of involuntariness. The other, the expectancy proposition, states that such a combination of behaviour and perception is brought about because it is perceived to be expected.

Many subjects do indeed possess the ability to produce hypnotic behaviour and experience. A research project was carried out testing the ability proposition by inducing cooperation among subjects and providing them with a clear conception of the expected task. These subjects were able to increase their level of suggestibility significantly and, in a majority of cases, increased it to what is conventionally defined as a high level. These findings replicated those of previous studies, and marked a methodological advance over past research because (a) the training procedures employed were standardized and extensive, and (b) perceived involuntariness was included in the index of suggestibility.

Evidence from other research suggests that subjects in typical hypnotic sessions (i.e., sessions involving a hypnotic induction) who

consistently report that their responses seemed involuntary are the very subjects who appear to be actively bringing such perceptions about. They make the kinds of suggested responses and produce the kinds of imagery that support and enhance the self-perception that suggested responses are occurring involuntarily.

Research evidence also provides strong support for the notion that hypnotic subjects exhibit involuntariness because they perceive this as expected of them by the hypnotist. A good many subjects, upon entering the hypnotic situation, are dependent on sources other than themselves for information regarding their role. The hypnotist is the forthcoming with just this sort of information. Within the test phase of the hypnotic session, the hypnotist communicates expectations through test suggestions, challenges, and imagine requests. Suggestions are phrased as "you are..." declarations and thereby invite subjects to adopt the identity that is about to be described to them. Through challenges, imagine requests, and the content of test suggestions, the hypnotist invariably defines the individual as one in whom certain responses are occurring involuntarily.

Only a small portion of hypnotic subjects consistently exhibit involuntariness. A major reason for this, and one heretofore not stressed by investigators, is the fact that communication during the test phase is compatible with different, though equally appropriate perceptions of what is expected. It is appropriate, for example, to interpret what the hypnotist says as an expectation to exhibit involuntariness. Nonetheless, it is also appropriate to interpret what is said as an invitation to wait passively and observe whether or not predicted responses occur.

In describing hypnosis as conformity, I mean to imply that hypnotists influence the beliefs as well as the behaviour of their subjects. Evidence suggests that subjects actually accept privately, at least for the moment, that their suggested behaviour is involuntary. Little is known about the permanence with which this belief is held, and if it is permanent, why it is held. Investigations into this question would be of great interest.

References

- Arnold, M.B. On the mechanism of suggestion in hypnosis. Journal of Abnormal and Social Psychology, 1946, 41, 107-128.
- Averill, J.R. Emotion and anxiety: Sociocultural, biological, and psychological determinants. In M. Zuckerman & C.D. Spielberger (Eds.), Emotion and anxiety: New concepts, methods, and applications. New York: LEA-Wiley, 1976.
- Averill, J.R. A constructivist view of emotion. In R. Plutchik & H. Kellerman (Eds.), Theories of Emotion. New York: Academic Press, 1980.
- As, A., Hilgard, E.R., & Weitzenhoffer, A.M. An attempt at experimental modification of hypnotizability through repeated individualized hypnotic experiences. Scandinavian Journal of Psychology, 1963, 4, 81-89.
- Barber, T.X. Hypnosis: A scientific approach. Princeton, N.J.: Van Nostrand, 1969.
- Barber, T.X., & Calverley, D.S. The definition of the situation as a variable affecting "hypnotic-like" suggestibility. Journal of Clinical Psychology, 1964, 20, 438-440. (a)
- Barber, T.X., & Calverley, D.S. Empirical evidence for a theory of "hypnotic" behaviour: Effects of pretest instructions on response to primary suggestions. Psychological Record, 1964, 14, 457-467. (b)
- Barber, T.X., Spanos, N.P., & Chaves, J.F. Hypnosis, imagination, and human potentialities. Morristown, N.J.: General Learning Press, 1974.

Bernheim, H. Suggestive therapeutics. New York: Putnam, 1900.

(Originally published, 1880.)

Boring, E.G. A history of experimental psychology. New York: Appleton, 1950.

Botto, R.W., Fisher, S., & Soucy, G.P. The effect of a good and a poor model on hypnotic susceptibility in a low demand situation. International Journal of Clinical and Experimental Hypnosis, 1977, 25, 175-183.

Bowers, K.S. Do the Stanford scales tap the "classic suggestion effect"? International Journal of Clinical and Experimental Hypnosis, 1981, 29, 42-53.

Braid, J.. Neurhypnology; or the rationale of nervous sleep. In M.M. Tinterow (Ed.), Foundations of hypnosis. Springfield, Ill.: Charles C. Thomas, 1970. (Originally published in 1841.)

Braid, J. The power of the mind over the body. In M.M. Tinterow (Ed.), Foundations of hypnosis. Springfield, Ill.: Charles C. Thomas, 1970. (Originally published in 1846.)

Braid, J. The phisiology of fascination and the critics, criticised. In M.M. Tinterow (Ed.), Foundations of hypnosis. Springfield, Ill.: Charles C. Thomas, 1970. (Originally published in 1855.)

Bramwell, J.M. Hypnosis: Its history, practice, and theory (2nd ed.). London: Alexander Moring, 1906.

Chanowitz, B., & Langer, E.J. Knowing more (or less) than you can show: Understanding control through the mindlessness-mindfulness distinction. In J. Garber & M.E.P. Seligman (Eds.), Human helplessness: Theory and applications. New York: Academic Press, 1980.

- Coe, W.C., & Sarbin, T.R. An alternative interpretation to the multiple composition of hypnotic scales: A single role relevant skill. Journal of Personality and Social Psychology, 1972, 18, 1-8.
- Comins, J.R., Fullam, F., & Barber, T.X. Effects of experimenter modelling, demands for honesty, and initial level of suggestibility on response to "hypnotic" suggestions. Journal of Consulting and Clinical Psychology, 1975, 43, 668-675.
- Cooper, L.M., Branford, S.A., Schubot, E., & Tart, C.T. A further attempt to modify hypnotic susceptibility through repeated individualized experiences. International Journal of Clinical and Experimental Hypnosis, 1967, 15, 118-124.
- Cronin, D. M., Spanos, N. P., & Barber, T. X. Augmenting hypnotic suggestibility by providing favourable information about hypnosis. American Journal of Clinical Hypnosis, 1971, 13, 259-264.
- Devoe, J.T., & Sachs, L.B. The modification of hypnotic susceptibility through imitative behaviour. International Journal of Clinical and Experimental Hypnosis, 1973, 21, 70-77.
- Diamond, M.J. The use of observationally presented information to modify hypnotic susceptibility. Journal of Abnormal Psychology, 1972, 79, 174-180.
- Diamond, M.J. Modification of hypnotizability: A review. Psychological Bulletin, 1974, 81, 180-198.
- Diamond, M.J. Hypnotizability is modifiable: An alternative approach. International Journal of Clinical and Experimental Hypnosis, 1977, 25, 147-166.

Diamond, M.J., Steadman, C., Harada, D., & Rosenthal, J. The use of direct instructions to modify hypnotic performance: The effects of programmed learning procedures. Journal of Abnormal Psychology, 1975, 84, 109-113.

Ellenberger, H.F. The discovery of the unconscious. New York: Basic Books, 1970.

Franklin, B., et al. Report of Dr. Benjamin Franklin and the other commissioners, charged by the King of France, with the examination of the animal magnetism, as now practised in Paris. In M.M. Tinterow (Ed.), Foundations of hypnosis. Springfield, Ill.: Charles C. Thomas, 1970. (Originally published in 1785.)

Gerard, H.B. Deviation, conformity, and commitment. In I.D. Steiner & M. Fishbein (Eds.), Current studies in social psychology. New York: Holt, Rinehart, & Winston, 1965.

Ham, M.L., Radtke, H.L., & Spanos, N.P. The effects of suggestion type and the experience of involuntariness on the breaching of hypnotic amnesia. Unpublished manuscript, Boston University, 1981.

Hilgard, E.R. Ability to resist suggestions within the hypnotic state: Responsiveness to conflicting communication. Psychological Reports, 1963, 12, 3-13.

Hilgard, E.R. Hypnotic susceptibility. New York: Harcourt, 1965.

Hilgard, E.R. Divided consciousness. New York: John Wiley & Sons, 1977.

Hilgard, E.R. Divided consciousness in hypnosis: The implications of the hidden observer. In E. Fromm & R.E. Shor (Eds.), Hypnosis: Developments in research and new perspectives (2nd ed.). New York: Aldine, 1979.

- Hilgard, E.R. Hypnotic susceptibility and implications for measurement. International Journal of Clinical and Experimental Hypnosis, 1982, 30, 394-403.
- Hilgard, E.R., Morgan, A.H., & Macdonald, H. Pain and dissociation in the cold pressor test: A study of hypnotic analgesia with "hidden reports" through automatic key-pressing and automatic talking. Journal of Abnormal Psychology, 1975, 84, 280-289.
- Howard, M.L., & Coe, W.C. The effects of context and subjects' perceived control in breaching posthypnotic amnesia. Journal of Personality, 1980, 48, 342-359.
- Hull, C.L. Hypnosis and suggestibility. New York: Appleton-Century-Crofts, 1933.
- Janet, P. Psychological healing: A historical and clinical study. (E. Paul & C. Paul, trans.). New York: Crowell and MacMillan, 1925. (Originally published in 1919.)
- Jones, B., & Spanos, N.P. Suggestions for altered auditory sensitivity, the negative subject effect, and hypnotic susceptibility: A signal detection analysis. Journal of Personality and Social Psychology, 1982, 43, 637-647.
- Jones, E.E., & Gerard, H.B. Foundations of social psychology. New York: Wiley, 1967.
- Katz, N.W. Comparative efficacy of behavioural training, training plus relaxation, and a sleep/trance induction in increasing hypnotic susceptibility. Journal of Consulting and Clinical Psychology, 1979, 47, 119-127.

- Kiesler, C.A., & Kiesler, S.B. Conformity. Reading, Mass.: Addison-Wesley, 1969.
- Kihlstrom, J.F., Evans, F.J., Orne, M.T., & Orne, E.C. Attempting to breach posthypnotic amnesia. Journal of Abnormal Psychology, 1980, 89, 603-616.
- Kihlstrom, J.F., & Shor, R.E. Recall and recognition during posthypnotic amnesia. International Journal of Clinical and Experimental Hypnosis, 1978, 26, 330-349.
- Kinney, J.M., & Sachs, L.B. Increasing hypnotic susceptibility. Journal of Abnormal Psychology, 1974, 83, 145-150.
- Klinger, B.I. Effect of peer model responsiveness and length of induction procedure on hypnotic responsiveness. Journal of Abnormal Psychology, 1970, 75, 15-18.
- Langer, E.J. Rethinking the role of thought in social interaction. In J.H. Harvey, W. Ickes, & R. Kidd (Eds.), New directions in attribution research, (Vol. 2). Hillsdale, N.J.: Lawrence Erlbaum Associates, 1978.
- London, P., Cooper, L.M., & Engstrom, D.R. Increasing hypnotic susceptibility by brain wave feedback. Journal of Abnormal Psychology, 1974, 83, 554-560.
- Lynn, S.J., Nash, M.R., Rhue, J.W., Frauman, D. & Scott, S. Hypnosis and the experience of nonvolition. International Journal of Clinical and Experimental Hypnosis, 1983, 31, 293-308. (a)
- Lynn, S.J., Nash, M.R., Rhue, J.W., Frauman, D., & Sweeney, C. Nonvolition, expectancies, and hypnotic rapport. Unpublished manuscript, Ohio University, 1983. (b)

- Meleis, J.P., & Hilgard, E.R. Attitudes toward hypnosis, self-predictions, and hypnotic susceptibility. International Journal of Clinical and Experimental Hypnosis, 1964, 12, 99-108.
- Mesmer, F.A. Mesmerism by Doctor Mesmer: Dissertation on the discovery of the unconscious. London: MacDonald, 1948. (Originally published in 1779.)
- Nisbett, R., & Ross, L. Human inference: Strategies and shortcomings of social judgment. Englewood Cliffs, N.J.: Prentice-Hall, 1980.
- Orne, M.T. The nature of hypnosis: Artifact and essence. Journal of Abnormal and Social Psychology, 1959, 58, 277-299.
- Perry, C. Is hypnotizability modifiable? International Journal of Clinical and Experimental Hypnosis, 1977, 25, 125-146.
- Pryor, J.B. Self-reports and behaviour. In D.M. Wegner & R.R. Vallacher (Eds.), The self in social psychology. New York: Oxford University Press, 1980.
- Rosenthal, R. Experimenter effects in behavioural research. New York: Appleton-Century-Crofts, 1966.
- Sachs, L.B., & Anderson, W.L. Modification of hypnotic susceptibility. International Journal of Clinical and Experimental Hypnosis, 1967, 15, 172-180.
- Sarbin, T.R. Contributions to role-taking theory 1: Hypnotic behaviour. Psychological Review, 1950, 57, 255-270.
- Sarbin, T.R. Attempts to understand hypnotic phenomena. In L. Postman (Ed.), Psychology in the making. New York: Alfred A. Knopf, 1962.
- Sarbin, T.R., & Coe, W.C. Hypnosis: A social psychological analysis of influence communication. New York: Holt, Rinehart and Winston, 1972.

Schuyler, B.A., & Coe, W.C. A physiological investigation of volitional and nonvolitional experience during posthypnotic amnesia. Journal of Personality and Social Psychology, 1981, 40, 1060-1069.

Shor, R.E. Hypnosis and the concept of the generalized reality orientation. American Journal of Psychotherapy, 1959, 13, 582-602.

Shor, R.E. Three dimensions of hypnotic depth. International Journal of Clinical and Experimental Hypnosis, 1962, 10, 23-28.

Shor, R.E. A phenomenological method for measurement of variables important to an understanding of the nature of hypnosis. In E. Fromm & R.E. Shor (Eds.), Hypnosis: Developments in research and new perspectives. New York: Aldine, 1979.

Spanos, N.P. Goal-directed fantasy and the performance of hypnotic test suggestions. Psychiatry, 1971, 34, 86-96.

Spanos, N.P. Hypnotic responding: Automatic dissociation or situation-relevant cognizing? In E. Klinger (Ed.), Imagery: Concepts, results, and applications. New York: Plenum, 1981.

Spanos, N.P. A cognitive, social psychological conceptualization of hypnotic behaviour. Research Communications in Psychology, Psychiatry, and Behaviour, 1982, 7, 199-213.

Spanos, N.P., & Barber, T.X. Cognitive activity during hypnotic suggestion: Goal-directed fantasy and the experience of nonvolition. Journal of Personality, 1972, 40, 510-524.

Spanos, N.P., Cobb, P.C., & Gorassini, D.R. Failing to resist hypnotic test suggestions: A strategy for self-presenting as deeply hypnotized. Unpublished manuscript, Carleton University, 1983.

Spanos, N.P., & de Groh, M. Communication structure and involuntariness reports in hypnotic and nonhypnotic subjects. Unpublished manuscript, Carleton University, 1983.

Spanos, N.P., & Gorassini, D.R. The structure of hypnotic test suggestions and attributions of responding involuntarily. Journal of Personality and Social Psychology, in press.

Spanos, N.P., & Hewitt, E.C. The hidden observer in hypnotic analgesia: Discovery or experimental creation? Journal of Personality and Social Psychology, 1980, 39, 1201-1214.

Spanos, N.P., & McPeake, J.D. Involvement in suggestion related imaginings, experienced involuntariness, and credibility assigned to imaginings in hypnotic subjects. Journal of Abnormal Psychology, 1974, 83, 687-690.

Spanos, N.P., & McPeake, J.D. Involvement in everyday imaginative activities, attitudes toward hypnosis, and hypnotic suggestibility. Journal of Personality and Social Psychology, 1975, 31, 594-598.

Spanos, N.P., & McPeake, J.D. Cognitive strategies, reported goal-directed fantasy, and response to suggestion in hypnotic subjects. The American Journal of Clinical Hypnosis, 1977, 20, 114-123.

Spanos, N.P., Radtke, H.L., & Bertrand, L. The successful breaching of hypnotic amnesia in high susceptible subjects. Journal of Personality and Social Psychology, in press.

Spanos, N.P., Radtke, H.L., Hodgins, D.C., Bertrand, L., Stam, H.J., & Dubreuil, D. The Carleton University Responsiveness to Suggestion Scale: Stability, reliability, and relationships with expectancy

and hypnotic experiences. Unpublished manuscript, Carleton University, 1982.

Spanos, N.P., Radtke, H.L., Hodgins, D.C., Bertrand, L., Stam, H.J., & Moretti, P. The Carleton University Responsiveness to Suggestion Scale: Relationship with other measures of hypnotic susceptibility, expectancies, and absorption. Unpublished manuscript, Carleton University, 1982.

Spanos, N.P., Radtke, H.L., Hodgins, D.C., Stam, H.J., & Bertrand, L. The Carleton University Responsiveness to Suggestion Scale: Normative data and psychometric properties. Psychological Reports, in press.

Spanos, N.P., Radtke, H.L., & Stam, H.J. Disorganized recall during suggested amnesia: Fact not artifact. Journal of Abnormal Psychology, 1980, 89, 1-19.

Spanos, N.P., Rivers, S.M., & Ross, S. Experienced involuntariness and response to hypnotic suggestions. Annals of the New York Academy of Sciences, 1977, 296, 208-221.

Spanos, N.P., Spillaine, J., & McPeake, J.D. Cognitive strategies and response to suggestion in hypnotic and task-motivated subjects. American Journal of Clinical Hypnosis, 1976, 18, 254-262.

Spanos, N.P., Stam, H., D'Eon, J., Pawlak, A., & Radtke-Bodorik, H. L. The effect of social psychological variables on hypnotic amnesia. Journal of Personality and Social Psychology, 1980, 39, 737-750.

Spanos, N.P., Weekes, J.R., & de Groh, M. Self-presenting as hypnotized by "involuntarily" countering suggested requests. Unpublished manuscript, Carleton University, 1983.

Springer, C.J., Sachs, L.B., & Morrow, J.E. Group methods of increasing hypnotic susceptibility. International Journal of Clinical and Experimental Hypnosis, 1977, 25, 184-191.

Tart, C.T. Increases in hypnotizability resulting from a prolonged program for enhancing personal growth. Journal of Abnormal Psychology, 1970, 75, 260-266.

Tellegen, A. On measures and conceptions of hypnosis. American Journal of Clinical Hypnosis, 1979, 21, 238-246.

Tellegen, A., & Atkinson, G. Openness to absorbing and self-altering experiences ("absorption"), a trait related to hypnotic susceptibility. Journal of Abnormal Psychology, 1974, 83, 268-277.

Tinterow, M.M. Foundations of hypnosis. Springfield, Ill.: Charles C. Thomas, 1970.

Weitzenhoffer, A.M. When is an "instruction" an "instruction"? American Journal of Clinical Hypnosis, 1974, 22, 258-269.

Weitzenhoffer, A.M. What did he (Bernheim) say? In F.H. Frankel & H.S. Zamansky (Eds.), Hypnosis at its bicentennial. New York: Plenum, 1978.

Weitzenhoffer, A.M. Hypnotic susceptibility revisited. The American Journal of Clinical Hypnosis, 1980, 22, 130-146.

Weitzenhoffer, A.M., & Hilgard, E.R. Stanford Hypnotic Susceptibility Scale, Forms A and B. Palo Alto, Calif.: Consulting Psychologists Press, 1959.

Weitzenhoffer, A.M., & Hilgard, E.R. Stanford Hypnotic Susceptibility Scale, Form C. Palo Alto, Calif.: Consulting Psychologists Press, 1962.

White, R.W. Preface to a theory of hypnotism. Journal of Abnormal and Social Psychology, 1941, 36, 477-505.

Yanchar, R.J., & Johnson, H.J. Absorption and attitude toward hypnosis: A moderator analysis. International Journal of Clinical and Experimental Hypnosis, 1981, 29, 378-382.

Zamansky, H.S. Suggestion and countersuggestion in hypnotic behaviour. Journal of Abnormal Psychology, 1977, 86, 346-351.

Footnotes

¹ Terms such as "directive" and "instruction" are often used by investigators interchangeably with the term "request".

² Any conceivable act can be suggested. However, discussion will be restricted to the rather simple kinds of acts that are commonly suggested in hypnosis experiments and during standardized tests of suggestibility.

³ The term "suggestibility" has been used by investigators interchangeably with such terms as "susceptibility", "hypnotizability", and "responsiveness".

⁴ ANOVAs involving CURSS and SHSS:C scores as dependent variables usually yielded a significant main effect for the low/medium initial suggestibility factor, but never yielded a significant interaction between initial suggestibility and other factors. These significant main effects indicated that initially medium suggestibles obtained higher posttest suggestibility scores than initially low suggestibles. A more extensive description of these effects is omitted here because correlations between initial suggestibility and posttested suggestibility are provided below.

⁵ Determining what constitutes a novel item is rather arbitrary. For instance, amnesia for previous suggestions was a practise item. It was

considered a novel item because it had not been practiced in the context of posthypnotic amnesia. Visual hallucination was not considered a novel item because subjects received a visual hallucination practise suggestion. Nevertheless, the contents of the practise and posttest hallucination suggestions were quite different.

⁶ The natural high suggestibles that formed the comparison group were all Carleton University undergraduates tested during the same academic terms and under the same group testing procedures as subjects in the present experiment. Natural highs were selected from a file that included only an identification number, date of CURSS testing, and CURSS:O score. CURSS:S and CURSS:O-I scores for these subjects were obtained from their original data booklets only after matching had been completed.

Appendix A
Training Information

[General Information]

Remember how in old movies the hypnotist would have the subject fixate on a dangling pocket watch? As the subject followed the watch with his/her eyes, the hypnotist would suggest repeatedly in a low voice something like: "You are becoming sleepy; your eyelids are getting heavier and heavier and are closing, closing completely; you want to go to sleep; you are falling, falling, falling into a deep, deep sleep.". In one form or another these kinds of instructions are still presented by hypnotists to their subjects today. You may recall that in your last session in this lab you were presented with these kinds of instructions, albeit without the watch. You were repeatedly told by the voice on the tape-recorder that you were falling into a deep sleep.

It was once commonly believed that giving subjects repeated instructions to go to sleep would cause them to go into a hypnotic trance. When in this trance, the subject was believed to come under the direct control of the hypnotist. The hypnotist was believed to take over the hypnotized subject's will and thereby became able to command the subject's mind and body to do practically anything. The subject was thus viewed as an automaton or robot who was fully subject to the commands of the hypnotist.

This view of hypnosis is one of the great misconceptions in the history of psychology. Subjects in a hypnotic session are, in fact, fully awake and are in full control of all their actions. The

repeated instructions for sleep do not cause you to go into a "trance" in which you "lose control of your actions" and become a "robot". No such hocus pocus is involved in hypnosis. Hypnosis has nothing whatsoever to do with any loss of consciousness, trances, or a loss of control. Far from involving a loss of control, hypnosis actually involves a skill that is within the full control of the individual. It is a skill that anyone can learn and master if given proper instructions and enough practise. In this sense it is no different than learning the skills required to ride a bicycle, to swim, or to solve mathematical problems. The repeated instructions for sleep simply serve the purpose of enabling you to relax and put your mind on learning the hypnotic skill.

It is evident that few people are ever taught the hypnotic skill and, as a consequence, few people are able to produce hypnotic responses. Asking the subject who has never learned the hypnotic skill to respond hypnotically is similar to asking a person who has never learned to swim, to swim a length of the pool. Clearly, the nonswimmer has first to learn how to swim before being able to swim the length of the pool. Similarly, the subject who has never learned the hypnotic skill has first to learn this skill before being able to produce hypnotic responses.

In order to enable you to learn the hypnotic skill, I am going to show you exactly what this skill involves and then give you plenty of opportunity to practice it. Learning the hypnotic skill is fully within the capabilities of normal individuals provided they know just what it is that they must do. In fact, research shows

that any well-adjusted person of your age is fully able to learn the hypnotic skill provided he/she puts forth sufficient effort. In addition, individuals who learn the hypnotic skill find it a very interesting experience. As in learning any new skill, learning this skill is completely within your control and is quite rewarding to master.

All that the hypnotic skill involves is that you make believe something. Before I describe this skill in more detail, let me give you an example. You are probably familiar with the Charlie Brown comic strip. In it, Charlie Brown's dog, Snoopy is often pictured sitting on his doghouse wearing a helmet and a scarf, paws outstretched, and gritting his teeth. Snoopy gets deeply involved in a make-believe situation. He imagines himself to be in a situation in which he is a World War I flying ace in the air somewhere over Germany in hot pursuit of the Red Baron. He gets so involved in his make-believe actions that, for the moment, he actually believes he's flying an airplane somewhere over Germany. He simply forgets that he's really a dog on a doghouse.

It's plain to see that Snoopy is in total control of his actions. Let us more carefully analyse what Snoopy is doing.

First off, he himself creates an entire make-believe situation. He does this through the direct control of his imagination. He actively imagines such things as the clouds around him, his own airplane and that of the Red Baron's, the roar of the engines, and everything else that is part of such a situation. In short, through his imagination--- in which he is in direct control--- he creates an entire make-believe situation.

It is important to understand that the hypnotic skill involves more than simply imagining a particular situation. A further analysis of the Snoopy example will illustrate what I mean. Snoopy did something more than simply create a new situation. He went one step further and actually became a part of that situation. He completely replaced the situation he was in formerly with a new one; he let the "World War I" situation completely replace the one in which he was merely "a dog on a doghouse". This had the interesting effect of making the "World War I" situation seem real because it was the only one to which Snoopy was directing his attention. According to modern psychology's definition of hypnosis, Snoopy was hypnotized because he was so preoccupied with his imaginings of the make-believe that he forgot they were make-believe.

This skill is not unusual nor mysterious. It's a rather common occurrence and what is meant when someone is said to be "absorbed", or "deeply involved", or "really into" their thoughts and imaginings. This skill is, of course, totally within your control for you can initiate or terminate it whenever you like. To further illustrate the degree of control you have in hypnosis, think of what young children are like when they play. Needless to say, they quite readily get involved in make-believe. Nonetheless, even children possess the ability to shift from the real to the imaginary world and back again whenever they like. For instance, when mother beckons that supper is ready, a child easily shifts his attention from the make-believe world to the real world goal of satisfying his hunger.

It's worth noting that we never lose our skill at becoming deeply involved in our imaginings; for one reason or another, however, we simply do not do it as much as children do. At any rate, you will no doubt be surprised at how good you are at this skill. Our research suggests that you will get better and better at it the more you get a chance to practice.

What are you to make believe? You will not be asked to do things as extreme or as potentially embarrassing as being a World War I flying ace. Instead you will be asked to involve yourself in some simple make-believe actions of a nonembarrassing kind. Soon you will be presented some suggestions--- four in all--- not much different from the ones you were presented the last time you were in the lab. Remember? You were presented with a suggestion that your arm was light and rising, that there was a kitten on your lap, that your arm was heavy and could not be lifted, and several more. It is these suggestions that will provide you with the make-believe situation that you will involve yourself in.

[Suggestion Specific Information]

[Arm-rising suggestion.] The first suggestion you will be presented with is an arm-rising suggestion. It will inform you of exactly what it is you are to make believe. It will specifically tell you that your arm is like a hollow balloon being pumped up with helium, and that the helium being pumped in makes your arm so light that it rises into the air by itself. In response to this suggestion, you must do everything that is required of someone making believe such a thing: you must lift your arm up, and you

must imagine that the arm is really a hollow balloon that is being pumped up full of helium, rising by itself, and anything else you wish to imagine that is consistent with such a make-believe situation.

You must become very deeply involved in the make-believe and actually make it seem real. Becoming involved requires that you keep your attention only on the things the suggestion tells you to imagine. Rivet your attention on the hollow arm, its lightness, the fact that it's going up by itself, and so on. Don't imagine anything or pay attention to anything that is unrelated to the make-believe situation. Attending strongly to imaginings of the make-believe situation only, will help prevent the possibility of irrelevant thoughts entering your mind and shaking you out of the make-believe world.

Now it's your turn to respond to the arm-rising suggestion. Let yourself become totally involved in the make-believe situation, so much so that it actually seems real. O.K., here is the arm-rising suggestion. [Play tape of the suggestion.]

[Hand-lock suggestion.] The next suggestion to be presented is the hand-lock suggestion. It will tell you just what you are to make believe. It will initially tell you to fold your hands. Then it will tell you to imagine that your hands are really two hunks of steel that are welded together. Following this, the suggestion will challenge you to pull the hands apart. Despite this challenge, don't pull the hands apart. Instead make-believe that the hands are unable to come apart by virtue of their being welded together. You

see, the challenge is all part of the make-believe. It is meant to establish the fact that the hands are so tightly welded together that despite your best efforts you simply cannot get them apart.

Remember what the hypnotic skill involves: You must let yourself become so deeply involved in the make-believe that it actually seems real. Do this by only imagining and thinking things that are connected with the make-believe situation; think of absolutely nothing else.

You will now be presented with the hand lock suggestion. Let yourself become totally involved in the make-believe situation suggested. Here is the hand-lock suggestion. [Play the suggestion,]

[Book "hallucination" suggestion.] The next suggestion will tell you that you see a book on the desk in front of you even though there is really no book there. The suggestion will start out by telling you to close your eyes and will tell you that the book is on the desk in front of you. It will suggest that you will see the book once you open your eyes. The suggestion will then instruct you to open your eyes and actually see the book. In response to this suggestion, you are to make yourself see the book and, in addition, you are to make believe that the book you are seeing is physically there and part of the natural surroundings of the room, and not simply something you are artificially making appear. The main idea, then, is to make the book you see seem like a natural part of the room. Just let yourself become totally involved in making-believe that the book is really there.

There is another thing: toward the end of the suggestion you will be asked to push the book off to the side. This action is also part of the make-believe. Even as you do it, continue to make believe there is really a book there.

Now, it's your turn. Let yourself become totally involved in the make-believe. Here is the suggestion. [Play the suggestion.]

["Amnesia" suggestion.] The next suggestion to be presented is one that will tell you that you are forgetting something you know. Specifically, the suggestion will state that the memories of the suggestions you were presented earlier in this session are fading completely from your mind. The suggestions I am referring to are, of course, the arm-rising suggestion, the hand-lock suggestion, and the suggestion to see the book. In response to the suggestion to forget, you are to make yourself forget the other suggestions. Do this by concentrating deeply on something other than the memories thereby distracting yourself from them. In being distracted in this manner, you will be unable to remember the suggestions.

The suggestion to forget also requires that you make believe that the suggestions are actually fading from your memory all by themselves and that you are doing nothing to make them go away. Therefore, you are to make believe that your forgetting is something that just happens to you; not something that you are causing.

As usual, you are to become deeply involved in this make-believe. Only attend to the make-believe situation, namely, that your memories of the suggestions are just fading away by themselves.

There is another matter: at one point in the suggestion, you will be challenged to remember the suggestions and write them down on a piece of paper. Despite this challenge, you are to continue to distract yourself from the suggestions while making believe you really cannot remember them. The challenge is all part of the make-believe situation. It is meant to further establish the fact that despite your best efforts to remember the suggestions, you simply cannot; they're gone.

To summarize: your task is to become so deeply involved in the make-believe that you won't notice that it's really you who is preventing the recall of the memories.

Following the challenge to remember the suggestions, there will be a one minute pause in which you will be able to write down any of the suggestions that you remember. This, in turn, will be followed by the cancellation of the forgetting; that is, the voice will say that you can remember the words again. Once this is done, you will be asked again to write the suggestions down on another piece of paper that will be provided. It will be all right at this point to stop distracting yourself, stop making believe, and actually write down the names of the suggestions on the paper.

Now it's your turn to do this one. Remember, let yourself become deeply involved in making believe that you are really doing nothing to make yourself forget. Here's the suggestion. [Play the suggestion.]

[Administer the subjective ratings questionnaire.]

[Generalization Instructions]

In a moment you will be presented with four more suggestions that are different from the ones you've just been presented. In addition, the upcoming suggestions will be presented one after the other with only sufficient time in between for you to make a full response; that is, you will be presented with a suggestion, given an ample opportunity to respond to it, and then be presented with the next suggestion right afterwards, and so on.

You will therefore not be given the extensive instructions you were given before: you will not, for instance, be told what an upcoming suggestion is, nor will you be given any instructions on how exactly to respond to such a suggestion. The reason why I am taking these measures is because you already know how to go about responding hypnotically, so going over the instructions again will probably be dull and boring for you. There is another even more important reason: suggestions presented in this manner will require that you apply the skills you've learned to new tasks. As a good hypnotic subject, you must be able to respond hypnotically to any suggestion you are presented even if you have not received it before or have not been given instructions on how to respond to it. With the basic skills you have now learned and with a little effort and creativity on your part, you will no doubt be able to respond hypnotically to any new suggestions that you may be presented with.

Now close your eyes and take a half minute to rehearse mentally the hypnotic skill and really get yourself psyched-up to respond hypnotically to each of the four new suggestions to be presented. I'll present the suggestions beginning in 30 seconds.

[After 30 seconds, present the suggestions.]

[Administer the subjective rating questionnaire.]

[Final Instructions]

You will not be presented with any more suggestions in this session. However, in the sessions ahead you will be presented with several more suggestions, most of them different from the ones that you were presented with today.

At the beginning of each of these sessions, you will be given statements saying that you are becoming relaxed and drowsy. These, as I noted earlier are only historical rituals and meant only to get you relaxed. They have nothing to do with suggestions and will not cause you to go into a trance.

Following the statements that suggest you are going to sleep, as I've noted, you will receive the several suggestions. I want you to respond to each of the suggestions you will be presented in the upcoming sessions in accordance with how you have learned to respond to the suggestions here today. Consider the two sessions ahead as opportunities to become ever more proficient at the hypnotic skill.

Appendix B

Treatment Session SuggestionsArm-Rising (Right Arm)

Place your right arm straight out in front of you at shoulder height. [Pause.] Imagine that your right arm is light and hollow like a balloon, and that it is gradually being pumped up with helium. The helium is lighter than air and it is causing your hollow arm to become lighter and lighter and to rise in the air. It's slowly rising into the air. More and more helium is being pumped into your arm, and the arm is getting lighter and lighter and just continues to rise. [Wait 25 seconds.]

[Model's Lines. It's going up by itself. It feels hollow. I can see the pump. I can feel the arm being pumped up. It's really light. It's moving up by itself. It's getting even lighter. It's going up by itself. It just keeps getting lighter and is going up by itself. It's just getting lighter and lighter.]

Relax your arm now and place it down on the table.

Hand Lock

Place your hands on the table, and clasp them together, interlacing the fingers. [Pause.] Imagine that your hands are two pieces of steel that are welded together so that it's impossible to get them apart. They're two pieces of steel welded together. When I ask you to pull your hands apart, they'll be stuck and won't come apart no matter how hard you try. [Wait 10 seconds] O.K., try to pull them apart. [Wait 20 seconds.]

[Model's Lines. They're really stuck together. This is impossible. They're welded together. They're just two hunks of steel welded together. I can't get them apart.]

Seeing the Book

Place your hands on your lap and close your eyes. [Pause.] I'm not sure if you've noticed, but there is a book of mine on the desk in front of you. It's an average sized book, one like hundreds you've seen. It's right there in front of you on the desk. Open your eyes and look at the book sitting there on the desk. [Wait 20 seconds.]

[Model's Lines. There it is. I can see it on the desk. I see the book sitting there. It's kind of vague and fuzzy... a vague, coloured outline of the book; but it's there.]

To avoid the book being in the way, why don't you just slide it off to the side. [Wait 10 seconds.]

[Model's Lines. I'll just push it over there and get it out of the way.]

The image of the book is now fading. It's faded completely and you no longer see the book.

Forgetting the Suggestions

As you recall, you were just given three suggestions. However, a funny thing is beginning to happen: the memory of these suggestions is fading; fading completely. In fact, you are totally unable to remember what these suggestions were. Nevertheless, I want you to try to remember them---even though this will be

impossible. Open your eyes and write down the suggestions that you can remember on the sheet of paper on the desk. You will be given one minute. Begin. [Wait one minute.]

[Model's Lines. All I can feel is a real heaviness all over my body, but especially in my feet. My feet are tingling; they're ~~just~~ heavy and tingling. It's a funny sensation. It feels kinda nice.. It's just like I'm being pricked with little pins.]

Time's up.

Now the memories are returning. They are becoming more and more clear. In fact, you can remember all the suggestions that were presented. Write down all of the suggestions on the piece of paper provided. Again, you will have one minute to do so. [Wait one minute.] Time's up.

Head Lowering

Imagine that a force is pushing down on the top of your head causing it to feel heavy. It feels like someone has placed the palm of their hand on top of your head and that they are pushing downwards. Your head is being pushed down with such force that it is beginning to fall forwards so that your chin is moving towards your chest. The force continues to push, making your head feel heavier and heavier, and making it fall forward more and more. [Wait 25 seconds.]

The force is no longer active and has diminished totally.

Body Immobility

You are very relaxed. You are so relaxed that your body just feels like a big lump of jelly. All the muscles in your body have turned to jelly and you can't move. You're just a heavy mass of dense jelly and you are totally unable to move. You feel so heavy that you can't stand up from your chair. You're totally unable to move because all of your muscles have turned to jelly. [Wait 10 seconds.] Try to stand up. You'll find that it's impossible. [Wait 20 seconds.]

You've regained your muscle tone totally and you can move easily again.

Hearing the Voice

You are taking a course in the history of psychology and you're now in the classroom. In a minute the professor will ask in what country Sigmund Freud was born. Of course you know from your studies that it was Moravia. [Begin to whisper.] As you can hear, the professor is already asking several other questions about Freud, and he's just getting to the country-of-birth question. So get ready. In a few seconds, as soon as you hear the professor ask the question, raise your hand and he might pick you to answer it. [Wait 20 seconds.]

O.K., he's called on someone else, you can lower your hand. Perhaps he'll call on you in tomorrow's class.

Forgetting the Suggestions

As you recall, you were just given three suggestions. However, a funny thing is beginning to happen: the memory of these

suggestions is fading; fading completely. In fact, you are totally unable to remember what these suggestions were. Nevertheless, I want you to try to remember them--even though this will be impossible. Open your eyes and write down the suggestions that you can remember on the sheet of paper on the desk. You will be given one minute. Begin. [Wait one minute.]

Time's up.

Now the memories are returning. They are becoming more and more clear. In fact, you can remember all the suggestions that were presented. Write down all of the suggestions on the piece of paper provided. Again, you will have one minute to do so. [Wait one minute.] Time's up.

Appendix C

Transcript of ConversationsArm-Rising Suggestion

E: So, how did you find responding in this way?

S: It was really good. With practise, I got better and better at it.

E: I see.

S: It's just like you said; it's like learning any skill like swimming or math. It just takes coaching and practise. And this skill: it's really important that you use your imagination. You have to use it and really get into what you imagine. You have to picture all the make-believe events in your mind.

E: Like what?

S: Well, for instance, I just let myself imagine that my arm was hollow. I could see it that way in my mind; you know, I could see my hollow arm with the air hose attached to it. I even imagined the pump. It was just like the air pumps that they have at gas stations. I could see the pump and the hose coming from it and pumping up my hollow arm.

E: I see.

S: And there's another really important thing. You really have to let yourself get into it. That really made the difference like you said it would. Like, I didn't just sit back and say: "Hey, I'm just imagining all this." Commenting on it would have just ruined the feeling. I just did it. I just let myself get totally engrossed in imagining my arm as hollow and being pumped up, and when I did, it all felt like it was really happening.

E: So, it felt real.

S: That's right. That's the point of all this, isn't it; you've got to make it feel real.

E: Yes, exactly.

S: There's a real knack to it. I found myself getting better and better at it as I practiced.

E: Very good!

Hand-Lock Suggestion

E: How was this one?

S: Good. I think I'm really getting good at the skill now.

E: Yes, you sure are.

S: I just let myself feel everything that was suggested. It really felt like my hands couldn't come apart.

E: Anything else?

S: I just pictured in my mind that my hands were two heavy, cold blocks of steel that were welded together. I got so into these thoughts that they actually felt that way.

E: What about when you were told to try and take them apart?

S: I just kept on imagining that they were welded together. That's the point of all this, isn't it?: I mean, to continue to make-believe they're welded together no matter what?

E: That's right.

S: If I'd stopped imagining and admitted to myself that they could come apart, then sure, of course, I could have made them come apart. But that wasn't the point of the suggestion. The point was to get involved in the make-believe no matter what. So I just kept really

involved in imagining my hands were welded chunks of steel. And I did this until the suggestion was completely over.

E: Very good. That's just what I wanted you to do. Anything else?

S: Uh. No, I can't think of anything.

Book "Hallucination" Suggestion

E: How did you find this one?

S: Well, before I was even asked to open my eyes, I had everything pictured in my mind. Like, I pictured the desk and I pictured the book on it. I pictured all the details of how the book would be positioned on the desk and how the book itself would look. I could see the book near the edge of the desk and on the book I could see the little call-number sticker and the stamps and everything.

E: And when you opened your eyes?

S: You know, it's funny. Opening my eyes didn't make much of a difference.

E: How do you mean?

S: Well, everything I pictured when I had my eyes closed, I let carry over to when I had my eyes open. I didn't let a thing change. I let myself see the book on the exact spot when they were open as I had pictured it when they were closed.

E: I see what you mean. That's quite clever. Anything else?

S: There's another thing. It's really important to concentrate as deeply as possible. Like I know it's important to concentrate on all the suggestions, but it's especially important with this one. You can't let your thoughts wonder for a second. You really have to let yourself see the book there all the time.

E: Uh h-u-u-m.

S: There's a real knack to this. It's a skill just like you said it was but it's a strange one. It's a skill at not noticing that you're really acting.

Amnesia Suggestion

E: How was this one?

S: Pretty good. I just let my attention drift away from the memories of the suggestions.

E: So it was you who caused your forgetting.

S: Sure, in a way. You can only remember things by sort of stopping what you're doing and letting yourself think back to what you're supposed to remember.

E: Ah yes, I see.

S: I just didn't stop and let myself think back. Instead, I just let my mind become preoccupied with other things.

E: Like what?

S: For instance, I noticed that my feet felt heavy and tingling, and so I just concentrated on these sensations in my feet. As long as I did that, and didn't shift my attention back to what I was supposed to remember, then I really couldn't remember.

E: Yes, I see. What about when you were told to try and remember the suggestions..

S: Well it's like with the other suggestion... you know, when I was asked to try and separate my hands. I didn't stop doing what the suggestion asked. For the suggestion to forget, I just kept on distracting myself. The point of the suggestion was to keep up the forgetting no matter what, so that's what I did.

E: Yes, that's right. Anything else?

S: No.... Well except that; like I said before, there's a real knack to this. You can really get good at it once you practice. You can really feel yourself getting better at controlling your mind to do all these things.

E: Almost everyone finds that.

S: Like, you can actually turn the make-believe into reality... and get good at it! It's actually kinda fun.

E: You know, almost everyone finds that, too.

Appendix D

Information Presented to "Practice Alone" Subjects[Hypnotic Induction]

Please close your eyes. Your ability to be hypnotized depends entirely on your willingness to co-operate. 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. In that case, you might make me seem silly, but you are only wasting time. On the other hand, if you pay close attention to what I say, and follow what I tell you, you can easily learn to fall into a hypnotic sleep. In that case you will be helping this experiment and not wasting any time. 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 co-operate. 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—eleven—twelve—deeper and deeper, always deeper sleep....Thirteen—fourteen—fifteen. You will always hear me clearly no matter how deeply asleep you may be...Sixteen —seventeen—deep asleep, fast asleep. Nothing will disturb you. You are going to experience many things that I will tell you to experience...Nineteen—twenty. Deep asleep. You will not awaken until I tell you to do so. You will wish to sleep and have the experiences I shall presently describe.

You are feeling comfortable, relaxed, thinking of nothing, nothing but what I say, your eyes are closed, comfortably closed,

you are thinking of nothing, nothing but what I say, your arms and legs feel heavy, your arms and legs feel heavy and you are relaxed, relaxed, your whole body feels relaxed, your whole body feels relaxed, the muscles of your face, arms, and legs are relaxed, your whole body is relaxed. Drift deeper! It feels as though you are going backward into the darkness, backward into the darkness, and as you go backward into the darkness you are more and more relaxed, more and more comfortable, you are going backward, backward, and backward into the darkness and as you go backward you feel more and more comfortable, more and more relaxed, you are listening only to my voice, only to my voice, thinking of nothing, absolutely nothing, concentrating only on my voice, listening only to what I say, listening only to my voice, you are feeling comfortable and relaxed, comfortable and relaxed, comfortable and relaxed, and as you go backward and backward into the darkness you feel drowsy, very drowsy, and you are thinking of nothing, nothing but the sound of my voice, you feel comfortable and relaxed, comfortable and relaxed, breathing regularly and deeply, regularly and deeply—regularly and deeply—thinking of nothing, nothing but the sound of my voice—breathing regularly and deeply, regularly and deeply, regularly and deeply, and you are in a sleep, a deep, sound comfortable sleep—a deep sound comfortable sleep, breathing regularly and deeply, regularly and deeply, regularly and deeply—your sleep is getting deeper, deeper, deeper, as you go backward into the darkness your sleep is getting deeper and deeper—deeper and deeper—deeper and deeper—you feel comfortable

and relaxed—listening only to my voice—breathing regularly and deeply, regularly and deeply, regularly and deeply—in a deep, sound sleep—deep, sound sleep—deep, sound sleep, and your sleep is getting deeper and deeper, deeper and deeper, deeper and deeper—you are in a deep sound sleep—deep sound sleep—deep sound sleep—breathing regularly and deeply—regularly and deeply—regularly and deeply and you are in a deep sound sleep—a deep sound sleep—sleep—sleep—sleep—sleep—sleep—sleep.

Soon you will be presented with some suggestions not much different from the ones you were presented the last time you were in the lab. Remember, you were told that your arm was light and rising, that you saw a cat on your lap, that you could not lift your arm from the desk, and several other things. It is very important that you be in a deep sleep when you are presented with each of the upcoming suggestions— there will be four of them in all.

[Sleepy Drowsy Instructions: to be repeated prior to each block 1 suggestion.] Remember, you are listening only to the sound of my voice, thinking of absolutely nothing, concentrating only on my voice, listening only to what I say, listening only to my voice, you are feeling comfortable and relaxed, comfortable and relaxed, comfortable and relaxed, and as you go backward and backward into the darkness you feel drowsy, very drowsy, and you are thinking of nothing, nothing but the sound of my voice, you feel comfortable and relaxed, comfortable and relaxed, breathing regularly and deeply, regularly and deeply—regularly and deeply—thinking of nothing, nothing but the sound of my voice—breathing regularly and deeply,

regularly and deeply, regularly and deeply, and you are in a sleep,
 a deep, sound comfortable sleep—a deep sound comfortable sleep,
 breathing regularly and deeply, regularly and deeply, regularly and
 deeply—your sleep is getting deeper, deeper, deeper, as you go
 backward into the darkness your sleep is getting deeper and
 deeper—deeper and deeper—deeper and deeper—you feel comfortable
 and relaxed—listening only to my voice—breathing regularly and
 deeply, regularly and deeply, regularly and deeply—in a deep, sound
 sleep—deep, sound sleep—deep, sound sleep, and your sleep is
 getting deeper and deeper, deeper and deeper, deeper and deeper—you
 are in a deep sound sleep—deep sound sleep—deep sound
 sleep—breathing regularly and deeply—regularly and
 deeply—regularly and deeply and you are in a deep sound sleep—a
 deep sound sleep—sleep—sleep—sleep—sleep—sleep.

[Present suggestion]

[Repeat the above sequence of sleepy drowsy suggestions and test
 suggestions until all four block 1 suggestions have been presented.]

[Following the last suggestion, administer the subjective ratings
 questionnaires.]

[Block 2 Instructions]

In a moment, you will be presented with four more suggestions,
 different from the ones you were just presented. There will be a
 further change in the way the new suggestions will be presented.
 They will be presented one after the other with only brief pauses in
 between. Before you are presented the suggestions, I want you to
 let yourself fall into an even deeper sleep than you fell into

during the last set of suggestions. Remember, you are listening only to the sound of my voice, thinking of absolutely nothing, concentrating only on my voice, listening only to what I say, listening only to my voice, you are feeling comfortable and relaxed, comfortable and relaxed, comfortable and relaxed, and as you go backward and backward into the darkness you feel drowsy, very drowsy, and you are thinking of nothing, nothing but the sound of my voice, you feel comfortable and relaxed, comfortable and relaxed, breathing regularly and deeply, regularly and deeply—regularly and deeply—thinking of nothing, nothing but the sound of my voice—breathing regularly and deeply, regularly and deeply, regularly and deeply, and you are in a sleep, a deep, sound comfortable sleep—a deep sound comfortable sleep, breathing regularly and deeply, regularly and deeply, regularly and deeply—your sleep is getting deeper, deeper, deeper, as you go backward into the darkness your sleep is getting deeper and deeper—deeper and deeper—deeper and deeper—you feel comfortable and relaxed—listening only to my voice—breathing regularly and deeply, regularly and deeply, regularly and deeply—in a deep, sound sleep—deep, sound sleep—deep, sound sleep, and your sleep is getting deeper and deeper, deeper and deeper, deeper and deeper—you are in a deep sound sleep—deep sound sleep—deep sound sleep—breathing regularly and deeply—regularly and deeply—regularly and deeply and you are in a deep sound sleep—a deep sound sleep—sleep—sleep—sleep—sleep—sleep—sleep.

[Present all block 2 suggestions.]

[Administer the subjective ratings questionnaire.]

[Final Instructions]

You will not be presented with any more suggestions in this session. However, in the sessions ahead you will be presented with several more suggestions, some of them different from the ones you were presented today. Just as today, at the beginning of these upcoming sessions, you will be told that you are falling into a hypnotic sleep. It is extremely important that you let yourself fall into the hypnotic sleep before the suggestions are presented, and that you maintain this deep sleep throughout the presentation of each of the suggestions. In the next session you must maintain the sleep for seven suggestions whereas in the session after the next you must maintain the sleep for twelve suggestions. Consider the two remaining sessions as an opportunity to become even more deeply hypnotized than you have been up until this point in time. You will become more deeply hypnotized in the upcoming sessions than you ever have before.

Appendix E

Hypnotic Attitudes Questionnaire

Instructions: On the attached answer sheet, indicate your degree of agreement or disagreement with each of the following statements.

1. I find the whole idea of becoming hypnotized an attractive prospect.
2. I have some apprehensions about hypnosis and being hypnotized.
3. The study of hypnosis has little place in modern science.
4. I would like to become deeply hypnotized.
5. I wonder about the mental stability of those who become deeply hypnotized.
6. Those who are easily hypnotizable are weak people.
7. Those who can become deeply hypnotized are as normal and well adjusted as anyone.
8. I would not mind being known as someone who can be deeply hypnotized.
9. Intelligent people are the least likely to get hypnotized.
10. I'm not afraid of becoming hypnotized.
11. I would rank hypnosis right up there with the occult, the black arts, and witchcraft.
12. I am totally open to being hypnotized.
13. One's ability to be hypnotized is a sign of their creativity and inner strength.
14. I am skeptical of clairvoyants and of those who claim to have telepathic powers.

Appendix F.1

Practise Session Suggestibility Raw Scores

A. Objective Scores

Susc ^a	Trea ^b	Bloc ^c					
1	1	1	.000000	1.00000	1.00000	.000000	2.00000
			1.00000	.000000	2.00000	.000000	2.00000
			.000000	1.00000	1.00000	1.00000	.000000
1	1	2	.000000	.000000	.000000	.000000	2.00000
			1.00000	.000000	3.00000	.000000	1.00000
			.000000	.000000	.000000	.000000	.000000
1	2	1	3.00000	4.00000	4.00000	3.00000	4.00000
			2.00000	3.00000	3.00000	4.00000	.000000
			4.00000	4.00000	3.00000	3.00000	3.00000
1	2	2	1.00000	3.00000	2.00000	2.00000	3.00000
			3.00000	2.00000	2.00000	3.00000	.000000
			4.00000	3.00000	4.00000	3.00000	2.00000
1	3	1	3.00000	4.00000	4.00000	4.00000	4.00000
			4.00000	4.00000	4.00000	4.00000	4.00000
			4.00000	4.00000	4.00000	4.00000	4.00000
1	3	2	3.00000	3.00000	4.00000	3.00000	3.00000
			4.00000	3.00000	4.00000	4.00000	2.00000
			4.00000	3.00000	4.00000	3.00000	4.00000
2	1	1	2.00000	1.00000	1.00000	1.00000	.000000
			1.00000	2.00000	1.00000	3.00000	1.00000
			3.00000	2.00000	1.00000	1.00000	.000000
2	1	2	1.00000	1.00000	1.00000	1.00000	1.00000
			1.00000	1.00000	2.00000	3.00000	3.00000
			2.00000	2.00000	1.00000	3.00000	1.00000
2	2	1	3.00000	4.00000	3.00000	3.00000	3.00000
			3.00000	4.00000	4.00000	3.00000	2.00000
			3.00000	3.00000	4.00000	4.00000	3.00000

^aSusc = Suggestibility; 1 = low; 2 = medium.

^bTrea = Treatment; 1 = control; 2 = practise alone; 3 = information without model; 4 = information with model.

^cBloc = Block; 1 = block 1; 2 = block 2.

Appendix F.1 (continued)

Susc Trea Bloc

2	2	2	4.00000	4.00000	2.00000	3.00000	2.00000
			3.00000	4.00000	3.00000	2.00000	2.00000
			3.00000	2.00000	2.00000	4.00000	3.00000
2	3	1	4.00000	3.00000	2.00000	4.00000	4.00000
			3.00000	4.00000	4.00000	3.00000	4.00000
			4.00000	4.00000	4.00000	4.00000	3.00000
2	3	2	3.00000	3.00000	.000000	4.00000	3.00000
			3.00000	4.00000	3.00000	2.00000	4.00000
			3.00000	3.00000	3.00000	3.00000	3.00000

B. Subjective Scores

1	1	1	2.00000	1.00000	5.00000	4.00000	4.00000
			4.00000	.000000	12.0000	1.00000	5.00000
			1.00000	4.00000	4.00000	3.00000	1.00000
1	1	2	5.00000	3.00000	4.00000	6.00000	3.00000
			6.00000	.000000	11.0000	.000000	3.00000
			2.00000	4.00000	.000000	1.00000	.000000
1	2	1	6.00000	10.0000	8.00000	5.00000	4.00000
			6.00000	3.00000	2.00000	3.00000	3.00000
			.000000	5.00000	3.00000	2.00000	5.00000
1	2	2	5.00000	8.00000	8.00000	4.00000	4.00000
			7.00000	7.00000	5.00000	3.00000	1.00000
			5.00000	6.00000	6.00000	2.00000	6.00000
1	3	1	4.00000	8.00000	4.00000	9.00000	8.00000
			9.00000	6.00000	11.0000	2.00000	2.00000
			4.00000	9.00000	4.00000	4.00000	4.00000
1	3	2	2.00000	8.00000	4.00000	9.00000	8.00000
			10.0000	7.00000	11.0000	3.00000	3.00000
			7.00000	8.00000	5.00000	5.00000	3.00000
2	1	1	5.00000	5.00000	2.00000	4.00000	2.00000
			3.00000	6.00000	5.00000	6.00000	5.00000
			8.00000	2.00000	1.00000	4.00000	1.00000
2	1	2	8.00000	6.00000	3.00000	3.00000	3.00000
			3.00000	4.00000	6.00000	6.00000	6.00000
			8.00000	4.00000	1.00000	5.00000	2.00000

Appendix F.1 (continued)

Susce Treas Bloc

2	2	1	8.00000	5.00000	9.00000	4.00000	4.00000
			6.00000	5.00000	8.00000	2.00000	4.00000
			5.00000	6.00000	2.00000	10.00000	4.00000
2	2	2	12.00000	2.00000	10.00000	3.00000	8.00000
			5.00000	6.00000	10.00000	4.00000	7.00000
			5.00000	5.00000	4.00000	9.00000	7.00000
2	3	1	10.00000	2.00000	3.00000	8.00000	8.00000
			9.00000	10.00000	4.00000	5.00000	10.00000
			6.00000	8.00000	9.00000	11.00000	4.00000
2	3	2	12.00000	3.00000	4.00000	9.00000	6.00000
			10.00000	9.00000	4.00000	6.00000	12.00000
			9.00000	9.00000	7.00000	9.00000	5.00000

C. Objective - Involuntariness Scores

1	1	1	.000000	.000000	1.00000	.000000	.000000
			1.00000	.000000	2.00000	.000000	2.00000
			.000000	1.00000	1.00000	.000000	.000000
1	1	2	.000000	.000000	.000000	.000000	.000000
			1.00000	.000000	3.00000	.000000	.000000
			.000000	.000000	.000000	.000000	.000000
1	2	1	2.00000	3.00000	3.00000	1.00000	2.00000
			.000000	.000000	1.00000	.000000	.000000
			.000000	.000000	1.00000	.000000	1.00000
1	2	2	1.00000	3.00000	2.00000	1.00000	1.00000
			1.00000	.000000	.000000	1.00000	.000000
			2.00000	.000000	1.00000	1.00000	1.00000
1	3	1	.000000	1.00000	.000000	3.00000	2.00000
			3.00000	2.00000	4.00000	.000000	.000000
			1.00000	2.00000	1.00000	1.00000	1.00000
1	3	2	.000000	1.00000	1.00000	3.00000	2.00000
			4.00000	2.00000	4.00000	.000000	.000000
			3.00000	3.00000	1.00000	2.00000	1.00000
2	1	1	1.00000	1.00000	.000000	1.00000	.000000
			.000000	2.00000	1.00000	2.00000	1.00000
			3.00000	.000000	1.00000	.000000	.000000

Appendix F.1 (continued)

Susc Treas Bloc

2	1	2	1.00000	1.00000	.000000	.000000	1.00000
			1.00000	1.00000	2.00000	2.00000	2.00000
			2.00000	1.00000	.000000	2.00000	.000000
2	2	1	3.00000	1.00000	3.00000	1.00000	1.00000
			1.00000	1.00000	3.00000	.000000	2.00000
			1.00000	1.00000	.000000	4.00000	1.00000
2	2	2	4.00000	2.00000	2.00000	.000000	1.00000
			1.00000	.000000	3.00000	2.00000	2.00000
			2.00000	2.00000	.000000	4.00000	2.00000
2	3	1	3.00000	1.00000	.000000	2.00000	2.00000
			3.00000	3.00000	2.00000	.000000	4.00000
			1.00000	1.00000	3.00000	3.00000	.000000
2	3	2	3.00000	.000000	.000000	2.00000	.000000
			3.00000	4.00000	.000000	1.00000	4.00000
			2.00000	2.00000	3.00000	3.00000	1.00000

Appendix F.2

Raw Understanding Scores

Susc ^a Trea ^b						
1	1		2.00000	2.00000	3.00000	2.00000
			2.00000	2.00000	2.00000	2.00000
			2.00000	3.00000	3.00000	2.00000
1	2		1.00000	2.00000	2.00000	2.00000
			3.00000	3.00000	2.00000	2.00000
			3.00000	2.00000	2.00000	2.00000
2	1		2.00000	2.00000	2.00000	3.00000
			2.00000	2.00000	3.00000	2.00000
			2.00000	2.00000	2.00000	3.00000
2	2		3.00000	3.00000	2.00000	2.00000
			2.00000	2.00000	2.00000	1.00000
			2.00000	2.00000	3.00000	2.00000

^aSusc = Suggestibility; 1 = low; 2 = medium.

^bTrea = Treatment; 1 = control; 2 = practise alone; 3 = information without model; 4 = information with model.

Appendix F.3

Pretest and Posttest 1 Suggestibility

Raw Scores

A. Objective Scores

Susc^a Trea^b Sess^c

1	1	1	2.00000	.000000	2.00000	.000000	.000000
			.000000	2.00000	1.00000	2.00000	.000000
			1.00000	2.00000	2.00000	2.00000	.000000
1	1	2	2.00000	1.00000	5.00000	.000000	.000000
			.000000	3.00000	.000000	1.00000	.000000
			1.00000	3.00000	2.00000	.000000	4.00000
1	2	1	1.00000	.000000	2.00000	.000000	2.00000
			.000000	1.00000	2.00000	2.00000	2.00000
			2.00000	2.00000	.000000	.000000	.000000
1	2	2	.000000	.000000	3.00000	1.00000	2.00000
			2.00000	.000000	4.00000	4.00000	2.00000
			.000000	1.00000	1.00000	1.00000	.000000
1	3	1	2.00000	2.00000	1.00000	2.00000	.000000
			2.00000	1.00000	2.00000	1.00000	.000000
			2.00000	2.00000	2.00000	.000000	2.00000
1	3	2	3.00000	7.00000	2.00000	2.00000	7.00000
			3.00000	1.00000	6.00000	4.00000	.000000
			5.00000	4.00000	7.00000	4.00000	7.00000
1		1	.000000	2.00000	.000000	1.00000	1.00000
			2.00000	2.00000	2.00000	.000000	1.00000
			1.00000	2.00000	.000000	2.00000	2.00000
1	4	2	.000000	4.00000	4.00000	7.00000	5.00000
			6.00000	7.00000	7.00000	7.00000	5.00000
			4.00000	4.00000	5.00000	7.00000	5.00000
2	1	1	3.00000	3.00000	3.00000	3.00000	4.00000
			4.00000	3.00000	3.00000	3.00000	4.00000
			3.00000	4.00000	3.00000	3.00000	3.00000

^aSusc = Suggestibility: 1 = low; 2 = medium.^bTrea = Treatment: 1 = control; 2 = practise alone; 3 = information without model; 4 = information with model.^cSess = Session: 1 = pretest; 2 = posttest 1.

Appendix F.3 (continued)

Susc Treas Sess

2	1	2	2.00000	1.00000	5.00000	.000000	.000000
			.000000	3.00000	.000000	1.00000	.000000
			1.00000	3.00000	2.00000	.000000	4.00000
2	2	1	3.00000	4.00000	3.00000	3.00000	3.00000
			4.00000	3.00000	3.00000	4.00000	4.00000
			3.00000	3.00000	4.00000	3.00000	4.00000
2	2	2	6.00000	5.00000	2.00000	2.00000	2.00000
			3.00000	4.00000	1.00000	4.00000	4.00000
			1.00000	3.00000	2.00000	4.00000	2.00000
2	3	1	3.00000	3.00000	4.00000	3.00000	4.00000
			3.00000	3.00000	3.00000	4.00000	4.00000
			4.00000	3.00000	3.00000	4.00000	3.00000
2	3	2	6.00000	5.00000	6.00000	3.00000	5.00000
			3.00000	4.00000	7.00000	4.00000	3.00000
			4.00000	4.00000	6.00000	5.00000	5.00000
2	4	1	4.00000	3.00000	3.00000	3.00000	3.00000
			4.00000	4.00000	3.00000	4.00000	3.00000
			3.00000	4.00000	4.00000	3.00000	3.00000
2	4	2	6.00000	3.00000	4.00000	5.00000	7.00000
			7.00000	6.00000	3.00000	5.00000	6.00000
			5.00000	7.00000	7.00000	7.00000	3.00000

B. Subjective Scores

1	1	1	8.00000	5.00000	7.00000	4.00000	1.00000
			4.00000	5.00000	.000000	7.00000	1.00000
			7.00000	3.00000	4.00000	5.00000	5.00000
1	1	2	7.00000	5.00000	10.0000	3.00000	.000000
			2.00000	11.0000	.000000	5.00000	2.00000
			6.00000	4.00000	4.00000	1.00000	10.0000
1	2	1	3.00000	.000000	7.00000	5.00000	7.00000
			2.00000	3.00000	11.0000	4.00000	7.00000
			4.00000	8.00000	3.00000	4.00000	1.00000
1	2	2	2.00000	2.00000	11.0000	11.0000	4.00000
			7.00000	.000000	17.0000	1.00000	.000000
			1.00000	4.00000	.000000	4.00000	.000000

Appendix F.3 (continued)

Susc Treas Sess

1	3	1	7.00000	9.00000	5.00000	7.00000	3.00000
			13.00000	5.00000	6.00000	1.00000	2.00000
			.000000	7.00000	7.00000	.000000	11.0000
1	3	2	7.00000	21.0000	7.00000	9.00000	8.00000
			10.0000	1.00000	11.0000	5.00000	1.00000
			9.00000	9.00000	11.0000	1.00000	12.0000
1	4	1	2.00000	4.00000	1.00000	8.00000	2.00000
			6.00000	2.00000	7.00000	1.00000	3.00000
			3.00000	3.00000	.000000	2.00000	7.00000
1	4	2	2.00000	7.00000	2.00000	17.0000	13.0000
			13.0000	14.0000	19.0000	3.00000	5.00000
			6.00000	6.00000	7.00000	12.0000	7.00000
2	1	1	6.00000	9.00000	6.00000	9.00000	10.0000
			8.00000	8.00000	7.00000	8.00000	9.00000
			2.00000	11.0000	7.00000	.000000	6.00000
2	1	2	9.00000	10.0000	4.00000	5.00000	.000000
			5.00000	9.00000	9.00000	8.00000	9.00000
			.000000	12.0000	15.0000	.000000	1.00000
2	2	1	5.00000	9.00000	5.00000	5.00000	8.00000
			8.00000	7.00000	8.00000	8.00000	11.0000
			10.0000	8.00000	10.0000	9.00000	8.00000
2	2	2	12.0000	10.0000	4.00000	4.00000	5.00000
			8.00000	8.00000	3.00000	9.00000	10.0000
			4.00000	7.00000	5.00000	9.00000	4.00000
2	3	1	11.0000	10.0000	10.0000	8.00000	12.0000
			7.00000	10.0000	8.00000	11.0000	10.0000
			11.0000	9.00000	2.00000	9.00000	10.0000
2	3	2	18.0000	10.0000	16.0000	5.00000	11.0000
			.000000	8.00000	18.0000	7.00000	11.0000
			2.00000	8.00000	7.00000	9.00000	10.0000
2	4	1	11.0000	1.00000	9.00000	10.0000	7.00000
			7.00000	13.0000	8.00000	7.00000	10.0000
			10.0000	13.0000	12.0000	9.00000	7.00000
2	4	2	18.0000	.000000	11.0000	12.0000	16.0000
			19.0000	16.0000	6.00000	.000000	20.0000
			14.0000	18.0000	16.0000	21.0000	3.00000

Appendix F.3 (continued)

C. Objective-Involuntariness Scores

Susc Trea Sess

1	1	1	2.00000	.000000	2.00000	.000000	.000000
			.000000	.000000	.000000	2.00000	.000000
			.000000	.000000	.000000	.000000	.000000
1	1	2	2.00000	1.00000	3.00000	.000000	.000000
			.000000	2.00000	.000000	1.00000	.000000
			1.00000	1.00000	.000000	.000000	2.00000
1	2	1	.000000	.000000	2.00000	.000000	2.00000
			.000000	1.00000	1.00000	.000000	2.00000
			.000000	.000000	.000000	.000000	.000000
1	2	2	.000000	.000000	3.00000	1.00000	1.00000
			.000000	.000000	4.00000	.000000	.000000
			.000000	.000000	.000000	2.00000	.000000
1	3	1	1.00000	1.00000	1.00000	2.00000	.000000
			2.00000	1.00000	1.00000	.000000	.000000
			.000000	2.00000	1.00000	.000000	1.00000
1	3	2	1.00000	5.00000	2.00000	.000000	1.00000
			.000000	.000000	2.00000	.000000	.000000
			1.00000	.000000	2.00000	.000000	3.00000
1	4	1	.000000	.000000	.000000	.000000	.000000
			.000000	.000000	1.00000	.000000	.000000
			.000000	.000000	.000000	.000000	1.00000
1	4	2	.000000	1.00000	.000000	5.00000	5.00000
			5.00000	5.00000	7.00000	.000000	.000000
			1.00000	1.00000	1.00000	.000000	2.00000
2	1	1	1.00000	2.00000	.000000	3.00000	2.00000
			1.00000	2.00000	2.00000	2.00000	3.00000
			.000000	1.00000	.000000	.000000	.000000
2	1	2	2.00000	2.00000	.000000	3.00000	.000000
			.000000	1.00000	3.00000	2.00000	1.00000
			.000000	4.00000	6.00000	.000000	.000000
2	2	1	1.00000	3.00000	.000000	.000000	.000000
			1.00000	1.00000	.000000	3.00000	2.00000
			3.00000	.000000	3.00000	2.00000	3.00000
2	2	2	5.00000	4.00000	.000000	1.00000	1.00000
			1.00000	1.00000	1.00000	4.00000	4.00000
			.000000	.000000	2.00000	2.00000	.000000

Appendix F.3 (continued)

Susc Treas Sess

2	3	1	4.00000	2.00000	1.00000	1.00000	4.00000
			.000000	1.00000	.000000	4.00000	4.00000
			4.00000	2.00000	.000000	1.00000	3.00000
2	3	2	6.00000	2.00000	5.00000	.000000	3.00000
			.000000	.000000	4.00000	3.00000	3.00000
			4.00000	1.00000	.000000	1.00000	3.00000
2	4	1	2.00000	.000000	2.00000	2.00000	1.00000
			1.00000	2.00000	.000000	1.00000	2.00000
			2.00000	3.00000	4.00000	2.00000	1.00000
2	4	2	6.00000	.000000	3.00000	5.00000	4.00000
			7.00000	6.00000	.000000	4.00000	6.00000
			2.00000	7.00000	6.00000	7.00000	.000000

Appendix F.4

SHSS:C Raw Scores

A. Objective Scores

Sus ^a Tre ^b						
1	1	2.00000	3.00000	5.00000	2.00000	.000000
		1.00000	10.0000	2.00000	4.00000	.000000
		1.00000	3.00000	2.00000	1.00000	5.00000
1	2	5.00000	1.00000	8.00000	5.00000	3.00000
		5.00000	.000000	7.00000	.000000	3.00000
		3.00000	2.00000	1.00000	6.00000	1.00000
1	3	8.00000	9.00000	1.00000	4.00000	8.00000
		8.00000	4.00000	9.00000	3.00000	1.00000
		8.00000	8.00000	8.00000	.000000	9.00000
1	4	1.00000	5.00000	6.00000	10.0000	9.00000
		10.0000	10.0000	10.0000	9.00000	7.00000
		3.00000	7.00000	8.00000	10.0000	7.00000
2	1	6.00000	3.00000	1.00000	4.00000	2.00000
		6.00000	5.00000	6.00000	4.00000	5.00000
		4.00000	9.00000	10.0000	2.00000	.000000
2	2	8.00000	8.00000	2.00000	3.00000	2.00000
		10.0000	2.00000	5.00000	8.00000	7.00000
		1.00000	5.00000	2.00000	7.00000	3.00000
2	3	10.0000	5.00000	8.00000	5.00000	10.0000
		6.00000	6.00000	9.00000	4.00000	5.00000
		7.00000	5.00000	9.00000	6.00000	10.0000
2	4	10.0000	4.00000	6.00000	8.00000	6.00000
		8.00000	8.00000	6.00000	9.00000	8.00000
		9.00000	9.00000	10.0000	9.00000	5.00000

B. Subjective Scores

1	1	7.00000	13.0000	9.50000	5.00000	2.00000
		3.00000	28.0000	4.00000	7.00000	3.00000
		4.00000	6.50000	5.50000	2.00000	15.0000

^aSusc = Suggestibility; 1 = low; 2 = medium.

^bTrea = Treatment; 1 = control; 2 = practise alone; 3 = information without model; 4 = information with model

Appendix F.4 (continued)

Susc Trea

1	2	9.00000	6.50000	19.0000	15.5000	9.00000
		10.5000	.000000	26.5000	3.00000	4.00000
		8.00000	7.00000	3.50000	11.5000	3.00000
1	3	18.5000	16.5000	8.00000	9.00000	9.00000
		15.5000	4.00000	20.5000	5.50000	2.00000
		7.50000	8.50000	13.0000	1.00000	23.0000
1	4	1.50000	10.0000	2.00000	22.0000	15.0000
		21.5000	13.5000	24.5000	7.00000	8.00000
		8.00000	12.5000	8.50000	17.5000	12.5000
2	1	12.0000	6.50000	4.50000	9.50000	5.00000
		7.50000	10.5000	15.0000	10.5000	13.5000
		.000000	25.5000	25.5000	1.50000	2.00000
2	2	21.0000	16.0000	3.00000	7.00000	7.50000
		19.0000	10.0000	11.5000	18.0000	15.5000
		5.50000	13.5000	4.00000	12.0000	9.50000
2	3	22.5000	13.5000	24.5000	8.00000	24.5000
		16.0000	7.00000	26.0000	9.00000	15.0000
		19.5000	12.5000	10.0000	13.5000	24.0000
2	4	30.0000	5.50000	11.0000	15.5000	16.0000
		18.0000	20.5000	15.0000	20.5000	26.5000
		18.5000	21.0000	23.0000	22.5000	8.50000

C. Objective-Involuntariness Scores

1	1	1.00000	2.00000	2.00000	2.00000	.000000
		.000000	10.0000	1.00000	1.00000	.000000
		1.00000	.000000	.000000	.000000	3.00000
1	2	2.00000	.000000	5.00000	.000000	1.00000
		3.00000	.000000	7.00000	.000000	1.00000
		1.00000	.000000	1.00000	3.00000	.000000
1	3	5.00000	3.00000	1.00000	1.00000	2.00000
		5.00000	.000000	5.00000	.000000	.000000
		.000000	.000000	5.00000	.000000	6.00000
1	4	.000000	1.00000	.000000	7.00000	2.00000
		8.00000	4.00000	10.0000	.000000	.000000
		1.00000	2.00000	.000000	6.00000	2.00000

Appendix F.4 (continued)

Susc Trea

2	1	3.00000	1.00000	.000000	2.00000	.000000
		2.00000	3.00000	4.00000	3.00000	4.00000
		.000000	9.00000	10.0000	.000000	.000000
2	2	7.00000	.000000	.000000	.000000	.000000
		6.00000	2.00000	4.00000	8.00000	4.00000
		1.00000	.000000	2.00000	2.00000	1.00000
2	3	9.00000	3.00000	6.00000	1.00000	8.00000
		2.00000	.000000	8.00000	4.00000	5.00000
		6.00000	3.00000	3.00000	3.00000	9.00000
2	4	10.0000	.000000	1.00000	5.00000	4.00000
		7.00000	6.00000	4.00000	6.00000	8.00000
		4.00000	7.00000	10.0000	8.00000	1.00000

3 3

OF / DE

Appendix F.5

Novel SHSS:C Items: Raw Scores

A. Objective Scores

Susc^a Trea^b

1	1	.000000	1.00000	3.00000	.000000	.000000
		.000000	4.00000	.000000	1.00000	.000000
		.000000	1.00000	2.00000	.000000	1.00000
1	2	1.00000	1.00000	4.00000	2.00000	2.00000
		1.00000	.000000	3.00000	.000000	1.00000
		2.00000	1.00000	1.00000	3.00000	.000000
1	3	4.00000	3.00000	.000000	2.00000	2.00000
		3.00000	2.00000	3.00000	.000000	1.00000
		2.00000	3.00000	2.00000	.000000	3.00000
1	4	1.00000	2.00000	1.00000	4.00000	3.00000
		4.00000	4.00000	4.00000	3.00000	2.00000
		1.00000	2.00000	3.00000	4.00000	2.00000
2	1	2.00000	1.00000	1.00000	2.00000	.000000
		1.00000	1.00000	2.00000	2.00000	2.00000
		1.00000	3.00000	4.00000	1.00000	.000000
2	2	2.00000	2.00000	.000000	1.00000	.000000
		4.00000	.000000	1.00000	4.00000	3.00000
		1.00000	1.00000	.000000	3.00000	.000000
2	3	4.00000	1.00000	2.00000	1.00000	4.00000
		4.00000	2.00000	3.00000	.000000	1.00000
		2.00000	2.00000	3.00000	4.00000	4.00000
2	4	4.00000	2.00000	1.00000	3.00000	.000000
		2.00000	3.00000	4.00000	4.00000	2.00000
		4.00000	2.00000	4.00000	4.00000	.000000

^aSusc = Suggestibility; 1 = low; 2 = medium.^bTrea = Treatment; 1 = control; 2 = practise alone; 3 = information without model; 4 = information with model.

Appendix F.5 (continued)

B. Subjective Scores

Susc Trea

1	1	1.00000	5.00000	2.50000	.000000	.000000
		1.00000	10.0000	1.00000	1.00000	.000000
		.000000	1.50000	3.50000	.000000	4.00000
1	2	5.00000	1.50000	6.00000	5.50000	3.00000
		4.50000	.000000	9.50000	2.00000	4.00000
		4.00000	3.00000	3.50000	6.50000	1.00000
1	3	9.50000	5.50000	.000000	4.00000	1.00000
		8.50000	2.00000	6.50000	.500000	2.00000
		2.50000	1.50000	3.00000	.000000	7.00000
1	4	1.50000	6.00000	.000000	6.00000	5.00000
		7.50000	5.50000	10.5000	2.00000	2.00000
		1.00000	3.50000	3.50000	6.50000	3.50000
2	1	4.00000	1.50000	1.50000	3.50000	3.00000
		.500000	3.50000	5.00000	3.50000	4.50000
		.000000	8.50000	8.50000	1.50000	1.00000
2	2	7.00000	5.00000	2.00000	2.00000	1.50000
		7.00000	3.00000	2.50000	7.00000	4.50000
		2.50000	3.50000	.000000	5.00000	.000000
2	3	5.50000	4.50000	8.50000	3.00000	10.5000
		6.00000	1.00000	9.00000	1.00000	3.00000
		3.50000	3.50000	3.00000	5.50000	9.00000
2	4	12.0000	2.50000	3.00000	4.50000	5.00000
		6.00000	6.50000	6.00000	8.50000	9.50000
		6.50000	5.00000	9.00000	8.50000	1.50000

C. Objective-Involuntariness Scores

1	1	.000000	.000000	.000000	.000000	.000000
		.000000	4.00000	.000000	.000000	.000000
		.000000	.000000	.000000	.000000	.000000
1	2	1.00000	.000000	2.00000	.000000	.000000
		1.00000	.000000	3.00000	.000000	1.00000
		.000000	.000000	1.00000	1.00000	.000000
1	3	3.00000	2.00000	.000000	1.00000	1.00000
		2.00000	.000000	2.00000	.000000	.000000
		.000000	.000000	1.00000	.000000	1.00000

Appendix F.5 (continued)

Susc Trea

1	4	.000000	.000000	.000000	1.00000	.000000
		3.00000	2.00000	4.00000	.000000	.000000
		.000000	.000000	.000000	2.00000	1.00000
2	1	.000000	.000000	.000000	.000000	.000000
		.000000	.000000	1.00000	1.00000	3.00000
		.000000	3.00000	4.00000	.000000	.000000
2	2	1.00000	1.00000	.000000	.000000	.000000
		1.00000	.000000	.000000	4.00000	.000000
		1.00000	.000000	.000000	.000000	.000000
2	3	3.00000	.000000	1.00000	1.00000	3.00000
		.000000	.000000	2.00000	.000000	1.00000
		1.00000	1.00000	.000000	1.00000	3.00000
2	4	4.00000	.000000	.000000	1.00000	.000000
		2.00000	2.00000	2.00000	3.00000	2.00000
		1.00000	1.00000	4.00000	3.00000	.000000

Appendix F.6
Suggestibility Raw Scores of Created
and "Natural" Highs

A. Subjective Scores

Susc^a

1	21.0000	8.00000	11.0000	9.00000	11.0000
	12.0000	17.0000	13.0000	13.0000	14.0000
	19.0000	3.00000	7.00000	12.0000	MISSING
	MISSING				
2	18.0000	16.0000	11.0000	18.0000	7.00000
	10.0000	18.0000	12.0000	19.0000	16.0000
	13.0000	20.0000	14.0000	18.0000	16.0000
	21.0000				
3	11.0000	14.0000	9.00000	14.0000	11.0000
	16.0000	12.0000	9.00000	17.0000	17.0000
	14.0000	13.0000	12.0000	14.0000	17.0000
	12.0000				

B. Objective-Involuntariness Scores

1	5.00000	1.00000	2.00000	1.00000	2.00000
	3.00000	5.00000	5.00000	5.00000	5.00000
	7.00000	.000000	1.00000	.000000	MISSING
	MISSING				
2	6.00000	5.00000	3.00000	4.00000	.000000
	3.00000	6.00000	5.00000	7.00000	6.00000
	4.00000	6.00000	2.00000	7.00000	6.00000
	7.00000				
3	4.00000	4.00000	.000000	3.00000	4.00000
	3.00000	3.00000	1.00000	6.00000	2.00000
	4.00000	5.00000	4.00000	4.00000	4.00000
	4.00000				

^aSusc = Initial Suggestibility; 1 = low; 2 = medium; 3 = "natural" high.

Appendix F.7

Attitude Pretest Raw Scores

Susc ^a Trea ^b						
1	1		8.0000	13.0000	9.0000	11.0000 20.0000
			-10.000	23.0000	9.00000	19.0000 28.0000
			19.0000	7.00000	21.0000	20.0000 21.0000
1	2		26.0000	-2.0000	19.0000	25.0000 20.0000
			.000000	11.0000	10.0000	10.0000 8.00000
			30.0000	23.0000	24.0000	-6.0000 4.00000
1	3		14.0000	12.0000	14.0000	31.0000 20.0000
			15.0000	32.0000	14.0000	13.0000 30.0000
			26.0000	9.00000	.000000	8.00000 12.0000
1	4		-4.0000	-7.0000	-10.000	28.0000 19.0000
			24.0000	23.0000	26.0000	21.0000 -10.000
			1.00000	28.0000	28.0000	21.0000 7.00000
2	1		18.0000	13.0000	24.0000	28.0000 4.00000
			27.0000	8.00000	29.0000	22.0000 31.0000
			-2.0000	8.00000	29.0000	.000000 27.0000
2	2		18.0000	31.0000	9.00000	17.0000 20.0000
			16.0000	14.0000	23.0000	18.0000 17.0000
			18.0000	23.0000	18.0000	14.0000 7.00000
2	3		11.0000	22.0000	13.0000	31.0000 21.0000
			17.0000	21.0000	14.0000	.000000 8.00000
			24.0000	6.00000	13.0000	24.0000 22.0000
2	4		32.0000	13.0000	29.0000	26.0000 12.0000
			20.0000	30.0000	1.00000	25.0000 13.0000
			28.0000	26.0000	26.0000	35.0000 14.0000

^aSusc = Suggestibility: 1 = low; 2 = medium.

^bTrea = Treatment: 1 = control; 2 = practise alone; 3 = information without model; 4 = information with model.

Appendix F.8
Raw Attitude Change Scores

Diff^aTrea^b

1	1	5.00000	-1.0000	16.0000	-7.0000	-2.0000
		2.00000	-6.0000	.000000	-1.0000	2.00000
		5.00000	9.00000	3.00000	-9.0000	2.00000
		7.00000	13.0000	2.00000	3.00000	4.00000
		3.00000	1.00000	3.00000	4.00000	-13.000
		.000000	17.0000	7.00000	-3.0000	-2.0000
1	2	-3.0000	19.0000	2.00000	2.00000	-1.0000
		20.0000	9.00000	17.0000	9.00000	14.0000
		3.00000	4.00000	5.00000	4.00000	-3.0000
		3.00000	-1.0000	-5.0000	5.00000	-3.0000
		6.00000	-3.0000	-1.0000	.000000	3.00000
		-2.0000	1.00000	3.00000	3.00000	-6.0000
1	3	21.0000	27.0000	16.0000	-19.000	13.0000
		14.0000	1.00000	11.0000	-1.0000	5.00000
		-3.0000	17.0000	34.0000	13.0000	18.0000
		-8.0000	8.00000	10.0000	4.00000	3.00000
		2.00000	-11.000	21.0000	-4.0000	10.0000
		4.00000	1.00000	7.00000	4.00000	10.0000
1	4	19.0000	31.0000	22.0000	8.00000	7.00000
		7.00000	7.00000	8.00000	3.00000	21.0000
		22.0000	.000000	-2.0000	7.00000	5.00000
		-2.0000	14.0000	9.00000	11.0000	21.0000
		3.00000	-2.0000	14.0000	8.00000	11.0000
		-3.0000	7.00000	8.00000	-2.0000	.000000
2	1	-6.0000	7.00000	19.0000	-7.0000	-6.0000
		5.00000	2.00000	-3.0000	8.00000	2.00000
		1.00000	8.00000	-2.0000	-5.0000	3.00000
		9.00000	11.0000	4.00000	5.00000	1.00000
		.000000	4.00000	5.00000	2.00000	-1.0000
		5.00000	16.0000	5.00000	-2.0000	-3.0000

^aDiff = Difference score; 1 = pretest to posttest 1;
2 = pretest to posttest 2.

^bTrea = Treatment; 1 = control; 2 = practise alone; 3 =
information without model; 4 = information with model.

Appendix F.8 (continued)

Diff Trea

2	2	5.00000	20.0000	2.00000	6.00000	12.0000
		.000000	6.00000	17.0000	5.00000	17.0000
		3.00000	6.00000	8.00000	1.00000	-3.0000
		3.00000	-3.0000	-10.000	1.00000	-5.0000
		6.00000	3.00000	2.00000	3.00000	4.00000
		3.00000	3.00000	.000000	7.00000	-2.0000
2	3	21.0000	25.0000	17.0000	-9.0000	12.0000
		15.0000	2.00000	16.0000	.000000	5.00000
		5.00000	20.0000	22.0000	-10.000	19.0000
		6.00000	5.00000	12.0000	.000000	16.0000
		5.00000	-8.0000	23.0000	9.00000	19.0000
		.000000	3.00000	11.0000	4.00000	13.0000
2	4	24.0000	27.0000	28.0000	8.00000	.000000
		8.00000	9.00000	8.00000	5.00000	24.0000
		22.0000	-4.0000	4.00000	9.00000	13.0000
		7.00000	8.00000	8.00000	10.0000	22.0000
		4.00000	-2.0000	24.0000	10.0000	13.0000
		8.00000	5.00000	9.00000	1.00000	1.00000

END

3	1	H	1	0	H	8	5
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FIN