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CHANGES IN HYPNOTIZABILITY AS A FUNCTION OF
SUGGESTION-BASED EXPERIMENTER MANIPULATIONS

by

Marlin O. Trulsen

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
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Department of Psychology

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CHANGES IN HYPNOTIZABILITY AS A FUNCTION OF SUGGESTION-BASED EXPERIMENTER MANIPULATIONS

Marlin O. Trulsen

Western Michigan University, 1994

Limited behavioral research exists on the subject of hypnosis. A behavioral perspective maintains that a "responding to hypnosis suggestion" class of behaviors exists for each individual. For individuals more readily responsive to hypnosis suggestion, this "responding to hypnosis suggestion" class of behaviors exists at greater strength due to a previous history which strengthened these behaviors. These individuals respond strongly to hypnosis suggestions and behave as "high hypnotizables". For others, the "responding to hypnosis suggestion" class of behaviors exists at weaker strength due to the absence of the necessary history. These less responsive individuals could directly benefit from the many medical, dental, and psychological applications of hypnosis with improved responsiveness to hypnosis suggestion.

This study examined a behaviorally-based program designed to improve an individual's responsiveness to hypnosis suggestion by providing contact with the necessary environmental history. Subjects completed a pre-post research design examining responsiveness to hypnosis suggestion within various hypothesized response classes (motoric, cognitive, and sensory) and levels of pain threshold and

pain tolerance. The experimental component consisted of controlled contact with hypnosis suggestions within and between specific response classes of behavior. Dependent measures examined patterns of change in hypnotizability, pain threshold, and pain tolerance as a function of selective training.

A two-way repeated measures analysis of variance revealed no statistically significant difference between the pre-posttest dependent measure change scores of the four respective treatment groups. A suggestive pattern resulted for the levels of pain threshold and pain tolerance measures as the (combined) Experimental group's outcomes demonstrated positive increases in these measures and the (combined) Control group's outcomes demonstrated slight reductions.

Although the results did not support the study hypotheses, the current research developed and incorporated a strong behavioral foundation for research with hypnosis. Future behavioral research would further develop this foundation by combining the incorporation of response class categories, the management of subject history, and Skinner's analysis of verbal behavior within hypnosis research protocols.

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experimenter manipulations**

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Western Michigan University, 1994

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Marlin O. Trulsen

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xii
CHAPTER	
I. INTRODUCTION.....	1
Historical Background of the Problem.....	3
Review of the Literature.....	8
Social Psychology Research in Hypnosis.....	8
Behavioral Psychology Research in Hypnosis.....	12
Statement of the Problem.....	24
Hypotheses to be Tested.....	27
Hypothesis One.....	27
Hypothesis Two.....	27
Hypothesis Three.....	27
Hypothesis Four.....	27
II. METHODOLOGY.....	28
Setting.....	28
Subjects.....	28
Procedures for Protection of Human Subjects.....	29
Procedure.....	29
Recruiting of Participants.....	29
Selection of Participants.....	30

Table of Contents-Continued

CHAPTER

Assignment to Treatment Groups.....	32
Dependent Measures.....	32
Harvard Group Scale of Hypnotic Susceptibility, Form A.....	33
Stanford Hypnotic Susceptibility Scale, Form A.....	35
Modified Stanford Hypnotic Susceptibility Scale, Form A.....	36
Modified Creative Imagination Scale.....	37
Modified Penn State Scale of Hypnotizability, Form D.....	38
Cold Pressor Test.....	40
Total Hypnotic Susceptibility Scale.....	41
Western Michigan Scale of Directed Practice and Imagination.....	41
Intervention.....	42
Experimental Design.....	42
Independent Variable.....	43
Personnel.....	43
Procedures.....	45
Phase I.....	45
Phase II.....	46
Phase III.....	47
Phase IV.....	49
Experimental Intervention Components of Response Class Generalization.....	49

Table of Contents-Continued

CHAPTER		
	Experimental Within (Response) Class Group.....	49
	Experimental Between (Response) Class Group.....	51
	Contact Control Group.....	52
	No Contact Control Group.....	53
	Phase V.....	53
	Phase VI.....	54
	Administration of the Instruments.....	54
	Phase I: Pre-treatment Screening.....	54
	Phase II: Cold Pressor Baseline Assessment Pre-hypnosis.....	55
	Phase III: Baseline Assessment Hypnotized.....	55
	Phase IV: Intervention.....	55
	Phase V: Post-treatment Assessment.....	55
	Phase VI: Post-treatment Assessment.....	55
III.	RESULTS.....	56
	Preliminary Considerations.....	57
	Pre-treatment Differences.....	57
	Gender Differences.....	58
	Age Differences.....	58
	Testing of the Hypotheses.....	58
	Hypothesis One.....	58
	Hypothesis Two.....	58
	Hypothesis Three.....	59

Table of Contents-Continued

CHAPTER

Hypothesis Four.....	59
Additional Analyses.....	61
Summary of the Results.....	63
IV. DISCUSSION.....	66
Discussion of the Results.....	66
Variables Impacting the Research Outcomes.....	69
Suggestions for Future Research.....	74

APPENDICES

A. Human Subjects Institutional Review Board Approval.....	80
B. Informed Consent for Participation in an Investigation: Preliminary Assessment and Screening.....	82
C. Informed Consent for Participation in an Investigation: Primary Investigation Procedures.....	85
D. Western Michigan Scale of Directed Practice and Imagination: Contact Control Treatment Condition Program.....	87
E. Contact Control Treatment Measurement Form.....	104
F. Research Assistant Hypnosis Training Program.....	106
G. Phase II Cold Pressor Subject Instructions.....	112
H. Cold Pressor Measurement Form.....	116
I. Experimental Within Class Treatment Condition Program....	118
J. Experimental Within Class / Between Class Treatment Measurement Form.....	134
K. Experimental Between Class Treatment Condition Program...	136
L. Nonsignificant Pre-test Harvard Group Scale of Hypnotic Susceptibility, Form A Scores.....	160

Table of Contents-Continued

APPENDICES

M. Nonsignificant Pre-test Stanford Hypnotic Susceptibility Scale, Form A Scores.....	162
N. Nonsignificant Pre-test Modified Stanford Hypnotic Susceptibility Scale, Form A Scores.....	164
O. Nonsignificant Pre-test Modified Creative Imagination Scale Scores.....	166
P. Nonsignificant Pre-test Modified Penn State Scale of Hypnotizability, Form D Scores.....	168
Q. Nonsignificant Pre-test Total Hypnosis Suggestion Scale Scores.....	170
R. Nonsignificant Pre-test Level of Pain Threshold Cold Pressor Test Scores.....	172
S. Nonsignificant Pre-test Level of Pain Tolerance Cold Pressor Test Scores.....	174
T. Nonsignificant Pre-test of Subject Gender Differences....	176
U. Nonsignificant Pre-test of Subject Age Differences.....	178
V. Nonsignificant Multiple Comparison Modified Creative Imagination Scale Tests.....	180
W. Non-significant One Factor Pre-Post Repeated Measures ANOVA No Contact Control Group Modified Creative Imagination Scale Scores.....	182
X. Non-significant Two-way Repeated Measures ANOVA Harvard Group Scale of Hypnotic Susceptibility, Form A Pre-Post Change Scores.....	184
Y. Non-significant Two-way Repeated Measures ANOVA Stanford Hypnotic Susceptibility Scale, Form A Pre-Post Change Scores.....	186
Z. Non-significant Two-way Repeated Measures ANOVA Modified Stanford Hypnotic Susceptibility Scale, Form A Pre-Post Change Scores.....	188

Table of Contents-Continued

APPENDICES

AA.	Non-significant Two-way Repeated Measures ANOVA Modified Penn State Scale of Hypnotizability, Form D Pre-Post Change Scores.....	190
BB.	Non-significant Two-way Repeated Measures ANOVA Total Hypnosis Suggestion Scale Pre-Post Change Scores.....	192
CC.	Non-significant Two-way Repeated Measures ANOVA Cold Pressor Level of Pain Threshold Pre-Post Change Scores.....	194
DD.	Non-significant Two-way Repeated Measures ANOVA Cold Pressor Level of Pain Tolerance Pre-Post Change Scores.....	196
EE.	Non-significant Multiple Comparison Combined Modified Creative Imagination Scale Test Results.....	198
FF.	Non-significant One Factor Pre-Post Repeated Measures ANOVA Control Group Combined Modified Creative Imagination Scale Scores.....	200
GG.	Levels of Pain Threshold and Pain Tolerance Change Scores.....	202
HH.	Non-significant Two-way Repeated Measures ANOVA Combined Harvard Group Scale of Hypnotic Susceptibility, Form A Pre-Post Change Scores.....	204
II.	Non-significant Two-way Repeated Measures ANOVA Combined Stanford Hypnotic Susceptibility Scale, Form A Pre-Post Change Scores.....	206
JJ.	Non-significant Two-way Repeated Measures ANOVA Combined Modified Stanford Hypnotic Susceptibility Scale, Form A Pre-Post Change Scores.....	208
KK.	Non-significant Two-way Repeated Measures ANOVA Combined Modified Penn State Scale of Hypnotizability, Form D Pre-Post Change Scores.....	210
LL.	Non-significant Two-way Repeated Measures ANOVA Combined Total Hypnosis Suggestion Scale Pre-Post Change Scores.....	212

Table of Contents-Continued

APPENDICES

MM. Non-significant Two-way Repeated Measures ANOVA Combined Cold Pressor Level of Pain Threshold Pre-Post Change Scores.....	214
NN. Non-significant Two-way Repeated Measures ANOVA Combined Cold Pressor Level of Pain Tolerance Pre-Post Change Scores.....	216
OO. Results of Supplemental Analyses Assessing Differences Between Levels of Pain Threshold and Pain Tolerance and Differences Between Hand A and Hand B.....	218
BIBLIOGRAPHY.....	238

LIST OF TABLES

1. Scale Items and Response Categories Developed for the Present Study.....	48
2. Significant Two-way Repeated ANOVA <u>Modified</u> <u>Creative Imagination Scale Scores</u>	60
3. Significant Two-way Repeated ANOVA Combined <u>Modified</u> <u>Creative Imagination Scale Scores</u>	62
4. Combined Levels of Pain Threshold and Pain Tolerance Change Scores.....	62

LIST OF FIGURES

1. Chronology of Subject Assignment to Treatment Groups.....	33
2. Experimental Design: Chronology of Screening, Assessment and Intervention.....	44

CHAPTER I

INTRODUCTION

A review of the literature indicates that Mesmer's initial discovery and application of hypnosis gave rise to what researchers consider the early framework of both modern hypnosis and general psychodynamic treatment. Both the Paris School and the psychoanalytic community trace their perspective of hypnosis as a more permanent state to this initial discovery and application. The Nancy School in France practiced an opposing view of hypnosis which considered hypnosis a modifiable phenomenon. As a result of not having been embodied within a prominent theoretical orientation less exploration and research has been conducted exploring hypnosis as a modifiable phenomenon until recently. This alternative view initiated the development of an empirical research base to support its position of hypnotic susceptibility as a modifiable behavior. This alternative conceptualization of hypnosis provides for an increase in both breadth and range of the potential benefits from the application of hypnosis.

Within the rubric of this alternative view of hypnosis, recent research has demonstrated techniques for improving hypnotic susceptibility levels (As, Hilgard, & Weitzenhoffer, 1963; Burns, 1976, 1977; Diamond, 1972, 1977; Katz, 1979; Kinney & Sachs, 1974; Klinger, 1970; Sachs, 1971; Sachs & Anderson, 1967; Springer, Sachs & Morrow, 1977).

This research, however, has not been fully adequate. A limitation of the social psychology/cognitive-behavioral research with hypnosis has been its sole focus on cognitive or intervening variables as the explanatory basis of what occurred for a subject during the hypnosis process. The attribution of causal status to the cognitive or intervening variables, along with the assumption that its status covaries with hypnotic performance, leads to conceptual and practical research problems.

Although previous demonstrations of improvement in subject hypnotizability exist several limitations remain for the behavioral research with hypnosis. First, previous research inconsistently applied earlier developed techniques for improving hypnotic susceptibility. This prevented an adequate comparison of the various research results. Second, previous research inadequately applied necessary methodological controls to promote the development and exploitation of techniques for enhancing hypnotic susceptibility. Third, previous research inadequately and incorrectly explained the varying patterns of successful modification of hypnotic susceptibility. "Odd" (Perry, 1977, p. 141) variations of susceptibility outcomes occurred. Most behavioral research demonstrated the greatest improvement of the moderate and highly susceptible subjects. Other studies, however, demonstrated the greatest improvement of the low susceptibility subjects (Burns, 1976, 1977; Diamond, 1972; Diamond, Steadman, Harada & Rosenthal, 1975; Diamond, 1977; Gur, 1974; Kinney & Sachs, 1974; Perry, 1977; Sachs, 1971).

This study investigates the effectiveness of a behaviorally based program specifically designed to address the theoretical limitations and methodological errors of previous studies by: (a) focusing on the modification of hypnotizability levels through providing the necessary prerequisite history designed to strengthen the behavioral repertoire and response class members of the behavior evoked by the stimulus conditions of a suggestion item, (b) categorizing the test suggestions into response class categories to ensure that training and subsequent dependent measure assessment will address the same categories, (c) providing the necessary methodological controls to ensure the appropriate level of research investigation and generalization of the results can occur, and (d) including a dependent measure to assess the functional relationship between changes in levels of pain threshold and pain tolerance as a function of changes in hypnotic susceptibility.

Historical Background of the Problem

Franz Anton Mesmer, recognized by modern history for developing and practicing the immediate precursive techniques to hypnotism, conducted his practice between 1775 and 1784 (p. 7, Watkins, 1986.) In Paris, France he proclaimed his discovery and began an extensive practice of his theories and techniques which he called "animal magnetism" (p. 14, Darnton, 1968) as opposed to the magnetism affecting natural magnets or the Earth's magnetic poles. Animal magnetism predated the term hypnosis and had as its objective, the influence of its subject's behavior at a distance by a practitioner who engaged an

appropriate ceremonial ritual. In its earlier form this ritual involved the deliberate placement of magnets within proximity of the subject, while demanding that the subject concentrate on the healing words of the "mesmerizer." Eventually the practice did not require the actual use of magnets. Instead, it only required the practitioner to touch, and therefore magnetize an object (often a metal). The resulting treatment often induced a "crisis" for the subject in the form of seizures and convulsions. This frequently resulted in subjects being placed in a mattress-lined "crisis room" until the crisis passed (Darnton, 1968).

Mesmer, considered both a shrewd and flamboyant personality, received his earlier training as a physician in Vienna. His practice of animal magnetism drew considerable attention and caused significant controversy and skepticism within the professional medical community; skepticism at least of the theoretical foundation provided by Mesmer regarding the curative basis for his practice. In 1784 a French Royal Commission reviewed and critically evaluated "Mesmerism" for its scientific basis. Benjamin Franklin, then ambassador to France from the United States, presided over this Royal Commission. The commission carefully examined Mesmer's theoretical explanation for the alleged effects. The observed effects of Mesmer's method impressed the commission members. They did not believe, however, that his explanation had any substantial basis in scientific theory. They attributed the observed influence to the subject's own imaginative abilities rather than to any type of magnetism. The Royal Commission branded Mesmer's methods as worthless and potentially

dangerous due to the often resulting convulsions of the subjects. It also considered the style of close physical contact between the patient and therapist as immoral as this would likely arouse sexual feelings in both the patient and the therapist. As a result of the commission's report the professional medical community strongly rebuked Mesmer and the practice of animal magnetism. Mesmer left Paris and died "penniless" in 1815 (Udolf, 1987; Watkins, 1986.)

As described in Hull (1933), Mesmer did not actually attempt to induce a trance state within his subjects. Instead, the trance state so frequently associated with modern hypnosis has as its roots an accidental discovery by a follower of Mesmer named Marquis de Puysegur. In 1784, Puysegur applied Mesmer's animal magnetism techniques to a shepherd (Victor) who then appeared to fall asleep instead of the expected convulsions and crisis often previously seen. After appearing to only partially awaken, the shepherd completed his many duties as if sleep-walking. When he finally fully awoke, the shepherd could not recall any of his behaviors while in this "somnambulistic state" (p. 9). As a result of this discovery the hypnosis community considered the presence of a subject trance state as an accurate indicator of the most successful level of subject hypnosis.

In 1841 James Braid, a respected Scottish ophthalmologist, after studying a demonstration of "magnetism", also disputed its proposed theoretical foundation. Instead, he proposed a psychological phenomenon as the causal agent due to the influence of psychological suggestion upon the subject. He developed the term "neurohypnotism" and then later just "hypnotism" from the Greek root hypno

which refers to sleep. Braid's work allowed the medical community to begin to address the potential benefits of hypnosis apart from its flamboyant and non-physiologically based beginnings (Udolf, 1987.)

During this time, the foundations of two differing applications and subsequent causal explanations of hypnosis began to emerge in France. Jean Charcot, a prominent neurologist of the time, founded the Paris School which used hypnosis to treat hysteric patients. The Paris School considered hypnosis as a phenomenon which resulted from the utilization of an organic (internal) condition present for the hysteric (pathological) patient. In opposition to the Paris School, neurologist Hippolyte Bernheim, in close collaboration with a physician, A. A. Liebeault, founded the Nancy School of Hypnosis (c. 1880). The Nancy School of Hypnosis primarily treated non-psychiatric cases such as those requiring pain reduction or surgery without anesthesia. As a result, their approach promoted a conceptualization of hypnosis as a more modifiable phenomenon, based on (external) suggestion. Eventually, persuaded by the sheer number of incontrovertible results, Charcot accepted the Nancy's School approach to hypnosis as more effective. This now allowed hypnosis to overcome one of the final obstacles preventing it from shedding its flamboyant past and becoming more scientifically acceptable within the medical community (Udolf, 1987.)

Continuing in the Paris's School orientation of hypnosis, a physician in Vienna named Josef Breuer (c. 1882) developed the practice of having patients re-live (abreact) earlier traumatic experiences. Breuer believed that an earlier traumatic experience

caused the identified disorder of the patient; usually some form of hysteria. Breuer served as a mentor to Sigmund Freud and through this contact Freud became at least a temporary student of hypnosis (Watkins, 1986.)

Freud traveled to Vienna to study under Breuer and began his involvement with hypnosis in 1887. Citing it as often only a temporary treatment in that it "by-passed the ego" Freud abandoned hypnosis seven years later in 1894 (p.3, Watkins, 1992). Alternatively, he developed and adopted the use of free association as opposed to the directed association of hypnosis.

Twenty years later, during World War I (1914 - 1918) the treatment of "battle fatigue" utilized hypnosis procedures. The use of hypnosis quickly and effectively returned soldiers to battle. Similarly, following World War II (1945 - 1946), the treatment of war neuroses affecting soldier's after they left the battlefield utilized hypnoanalytic procedures including abreacting techniques. In 1947, the application of hypnosis continued to expand with dental applications being widely taught in Minnesota (Watkins, 1986.)

Empirically based research exploring hypnosis and its underlying mechanisms required an improved means of measuring hypnotizability. Starting in the late 1950s and early 1960s, hypnotic susceptibility scales began to emerge (Udolf, 1987). These scales more specifically measured a subject's responses to a set of suggestions. Prior to this and originating from Charcot, a subject's response to hypnosis had only three (subjective) stages or levels: (1) lethargy, where the subject could neither hear nor speak; (2) catalepsy, where

the eyes remained open and the limbs remained where placed; and (3) somnambulism or ordinary trance (Hull, 1933).

The more recently developed scales, most often normatively based, attempted to be more objective than their predecessors. As a result, they could more empirically rank a subject's level of susceptibility: high, medium or low. Empirically-based research could now begin as a result of the improved susceptibility scales. Comparison of specific interventions, inductions, and research results could now occur and advances in hypnosis be effectively monitored. With effective monitoring and modification of hypnotic susceptibility levels clinical groups previously unable to benefit from hypnosis (low susceptible subjects) could now become amenable to the many medical, dental, and psychological benefits of appropriate hypnosis applications.

Review of the Literature

Social Psychology Research in Hypnosis

Notably, Spanos and his colleagues (Cronin, Spanos, & Barber, 1971; Spanos, Kennedy, & Gwynn, 1984; Spanos, McNeil, Gwynn, & Stam, 1984; Spanos, Radtke, Hodgins, Bertrand, Stam, & Moretti, 1983; Spanos, Robertson, Menary, & Brett, 1986) have researched means to alter the level of hypnotizability from a social psychology or cognitive-behavioral perspective. Their central focus has explored resulting changes in a subject's hypnotizability level due to changes in cognitive mediational processes (e.g., attitudinal or motivational

issues). This commendable work effectively assessed outcome results from an empirical research perspective. This work helped develop the beginnings of an empirically based research foundation for the observed effects of hypnosis and its interventions. In the case of hypnosis, Cronin et al. (1971) argue that a person's "expectancy" accounts, in part, for the hypnotic performance. According to Cronin et al. (1971), the alteration of expectancy results with experimenter manipulations such as the maintenance of a "friendly attitude" (p. 260). Cronin et al. (1971) operationalized expectancy as a rating on a uni-dimensional scale phrased as, "I believe that during the hypnosis experiment today, I will be:

- a) deeply hypnotized ____% of the time.
- b) medium hypnotized ____% of the time.
- c) lightly hypnotized ____% of the time.
- d) not hypnotized ____% of the time.

Total = ____% of the time."

When assigned by Cronin et al. (1971) as the status of a cognition this rating could be recognized as a shorthand denotation referring to a specific feature of the client's history. If the social psychology perspective actually posited this interpretation the suggested contrast between the social psychology or cognitive-behavioral mediational approach and a behavioral approach would not comprise a meaningful distinction. The attribution of causal status to this expectancy variable along with the assumption that its status (although clearly related to the person's history) covaries with hypnotic performance, however, leads to conceptual if not practical prob-

lems.

In the above study (Cronin et al., 1971) only the provision of favorable information about hypnosis affected the subject's expectancy and not the experimenter's friendliness. Expectancy, however, bore little relationship to actual hypnotic performance. Only the favorable verbal information provided by the experimenter about hypnosis directly affected hypnotic performance as opposed to the expectancy cognition. The authors concluded:

The present experiment also indicates that whether or not the E adopts a friendly or non-friendly attitude toward the S does not play an important role in affecting the S's responsiveness to hypnotic suggestions.... The findings that S's attitudes toward hypnosis were unaffected by favorable information concerning hypnosis is surprising. This finding indicates that such attitudes are either quite firmly entrenched and resistant to change or that the specific information provided in the present experiment was irrelevant to the particular attitudes that were assessed. (p. 264).

The sole focus on cognitive or intervening variables as the only explanatory basis of what occurs for a subject during the hypnosis process has limited the viability of this social psychology research. Although Spanos and his colleagues have demonstrated the importance of cognitions for effective hypnosis results, cognitions remain inherently weak when considered for empirically-based outcome measures due to their elusive and indirect nature. As stated by Skinner (1974):

It would also be a mistake not to recognize its [cognition's] limitations.... It does not explain overt behavior: it is simply more behavior to be explained....mental life and the world in which it is lived are inventions. They have been invented on the analogy of external behavior occurring under external contingencies. Thinking is behaving. The mistake is in allocating the behavior to the mind." (p. 115).

Alternative research control may be effectively developed when, instead of trying to change some elusive cognitive mediational process of the subject, the research addresses specific variables in the current environment and point to such variables in the subject's history as a basis for explanation of the hypnosis phenomenon. Adoption of a more behaviorally explicit framework begins to address several of the problems inherent in the social psychology or cognitive mediational view of hypnosis in several ways. First, due to the ephemeral characteristics of all behavior, the temptation occurs to attribute structural properties to the organism, (i.e., person), from whom the behavior emanates.. Cognitions provide a convenient means for identifying presumed private events believed to lead directly and "causally" to overt behavior. A more behaviorally explicit framework does not base its outcome measures on presumed private events.

Second, as demonstrated in the above study (Cronin et al., 1971), both the conceptual utility of expectancy and its status as a relevant causal variable in hypnosis remain weak. Instead, a behavioral perspective considers the paring of a conditioning or learning history with respect to the type of verbal behavior by the operator found in hypnotic induction ceremonies as the more important variable for improving a subject's hypnotic performance. According to Skinner (1957) both the hypnotic ceremony and the hypnotic suggestions contain numerous verbal mands. As demonstrated by the above study, subject expectations did not constitute the critical variable. Instead, the verbal behavior of the operator (in conjunction with the verbal conditioning history of the subjects) composed the crucial

agent of change.

Behavioral Psychology Research in Hypnosis

As a tenant of the behavioral perspective the Morgan Canon holds that a simple explanation is preferred and superior to a complex one. If explained in a simple way, this principle mandates avoiding unnecessary constructs and concepts when describing human behavioral events. Applying this practice to hypnosis results in efforts to effectively determine and utilize only those components absolutely necessary for the phenomenon of hypnosis to occur.

In order to begin a behavioral investigation into hypnosis the behavioral community operationalized several key terms. Skinner (1957) defined hypnosis as a behavioral process which conditions a listener to respond in a relatively precise and extreme fashion to the verbal stimulation of a speaker. More recently, Diamond (1974) defined hypnotic susceptibility as: "hypnotic behavior operationally defined and measured by standard hypnotic test scales and self ratings following attempted hypnotic induction." (p. 180). Skinner's analysis of verbal behavior allows an amenable melding of these two aspects of hypnosis. Skinner (1957) noted:

The often dramatic behavior of the listener under hypnosis is an extreme case of instruction. Techniques for inducing the hypnotic state are rich in mands, and hypnotic suggestions usually take the same form. If we give the hypnotised subject a fly-swatter and say this is an umbrella, he transfers what we may call his umbrella-behavior to the fly-swatter. Our response is a sort of magnified definition or instruction: Act as if this were an umbrella. If we then say it is raining, he may transfer his rainy-day behavior to the present scene and perhaps hold up the fly-swatter as an umbrella. (These statements are of course no more an explanation of hypnosis than the

preceding statements are an explanation of verbal behavior; they simply classify hypnotic instructions according to more general verbal contingencies. Hypnotic procedures intensify verbal control to the exclusion of other forms of stimulation. The exceptional results obtained under hypnosis do not differ in kind from the normal behavior of the listener.) (p. 366).

In summary, from a behavioral perspective, proper management of environmental variables strengthens weak response classes (Skinner, 1957). In relation to the present discussion, this management of environmental variables should result in an improved level of subject hypnotizability. Most behavioral responses occur when an individual responds to the multiple control of the numerous variables present in the environment. The above behavioral position predicts improvement in subject hypnotic susceptibility as a result of both the proper management of the appropriate environmental variables (i.e., prerequisite subject history) and the inherent increased control of the subject's behavior by the verbal behavior of the operator that results during hypnosis procedures. As demonstrated but not properly noted in the above social psychology study (Cronin et al., 1971) a change in the subject's response class strength resulted from the operator's verbal behavior. As a side effect of this environmental management by the operator the alteration of some of the subject's cognition or mediational processes summarily labeled as expectancy occurred. Although the Cronin et al. (1971) cognitive mediational study does result in an indirect change in the subject's hypnotizability level, from a research perspective, a more parsimonious approach would explore the alteration of hypnotizability levels from the most powerful (i.e., direct) vantage point available. This supports an

investigation into hypnosis from a behavioral perspective.

Previous behaviorally oriented research designed to modify hypnotic susceptibility has demonstrated positive results (As et al., 1963; Burns, 1976, 1977; Diamond, 1972, 1977; Katz, 1979; Kinney & Sachs, 1974; Klinger, 1970; Sachs, 1971; Sachs & Anderson, 1967; Springer et al., 1977). As previously noted, however, poor research designs and inadequate research controls make these studies theoretically and experimentally inadequate. Consequently, the research community cannot effectively analyze or generalize from the research outcomes.

Although later associated with the state position of hypnotic susceptibility and its view of susceptibility levels as immutable, As et al. (1963) conducted one of the earliest studies designed to modify hypnotic susceptibility. Acknowledging at that time, the malleability of hypnotic susceptibility, the authors noted, "The fact that a hypnotic subject can be 'trained' to become a better subject, in the sense of being able to yield more of the phenomena associated with hypnosis, is widely established" (p. 81). Following repeated individualized training sessions moderately susceptible subjects successfully completed a statistically significant mean average of 3.9 additional hypnotic suggestions during the As et al. (1963) study. For reasons not completely clear, however, the authors failed to report these findings and instead identified hypnosis as a fairly stable trait (Sachs, 1971). Although the study resulted in the modification of hypnotic susceptibility levels the authors greatly weakened their ability to add to an empirical research base

by drawing a seemingly errant conclusion and, more importantly, through their use of a poor research design. The authors did not use a systematic intervention during their research. Instead, both the number of sessions (four to ten) and the subject training protocols varied greatly. When describing the training protocols, the authors stated, "uniformity would be preserved only in the before and after tests; everything else, including the number of sessions, was to be left up to the experimenter" (p. 84). As a result, although able to demonstrate the modification of hypnotic susceptibility, As et al. (1963) did not provide a replicable method for future research.

Continuing with this behavioral orientation, Sachs, in a variety of studies (Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer et al., 1977) applied operant-based training procedures as a means to alter susceptibility levels. These training procedures relied on operant and informational control procedures and involved: (a) self-paced successive approximations, (b) providing the subject a clear understanding of the desired suggested sensory behavior, and (c) positive reinforcement. The successive approximation component allowed each subject to control the pace of the experimental training for each suggestion. Training proceeded only as the subject reported a just-noticeable-difference (improvement) in response to a suggestion until meeting a criterion level. By way of example of the authors providing a clear understanding of a suggestion, during the hand lowering suggestion, a book placed on the subject's hand remained until the hand lowered due to the book's weight. During this experience, the subject attempted to consciously experience the

sensations of the hand weighted by the book. Subjects received positive reinforcement in the form of verbal reinforcement and prompting following successful improvements in responses until mastering each suggestion.

Sachs's various studies effectively improved subject hypnotizability scores. Methodological problems, however, again limited the ability of the research community to effectively interpret the results. The absence of a control group and the assessment of the posttest measures by a researcher familiar with the study's hypothesized outcomes severely weakened the Sachs and Anderson (1967) study. The presence of these methodological problems greatly reduced the possible generalization and actual credibility of the outcomes. In 1974, Kinney and Sachs made several methodological improvements to this study (Sachs and Anderson, 1967) by including a control group and by assessing the dependent measures a researcher blind to the treatment group membership of the subjects. This again resulted in the modification of hypnotic susceptibility levels. A Springer et al. (1977) study demonstrated the effective group application of this design. Unfortunately, within the study design for both of these latter research projects, the subjects were, "told among other things, that 'the purpose of this experiment is to help you learn to become hypnotized. We would like you to concentrate on getting accustomed to the sensations accompanying hypnosis.... Anyone can learn to become hypnotized'", (p. 146) from Perry (1977). As Perry (1977) noted, the inclusion of this statement from the researchers clearly placed demand characteristics on the subjects. This in turn

resulted in "experimental artifacts" (p. 136) and again inhibits the research community's ability to draw effective conclusions from the study results.

Due to an inadequately developed theoretical bases for hypnosis by the behavioral community, at least two "odd" (Perry, 1977, p. 141) variations of susceptibility outcomes occurred. First, improvement of subject susceptibility level appeared to be a factor of the subject's initial level of susceptibility. As illustrated in a study by Burns (1976) the use of a discussion of attitudes toward hypnosis, positive education and individualized induction procedures effectively modified hypnotizability levels. Results revealed more dramatically modified hypnotizability levels of the moderate and highly susceptible subjects than the low susceptible subjects. The puzzled author noted that current theoretical explanations "give no indication" (p. 277) why the distribution of results occurred in this manner. Unfortunately, rather than using this outcome as an opportunity to better develop the behavioral theories of hypnosis, the puzzled author instead developed the construct of hypnotic "potential" (p. 277) as a post-hoc explanation of this unexplained variation in improvement of hypnotic susceptibility. Although known to the behavioral community, the researchers did not apply the behavioral principle of subject history.

A second odd variation of observed outcome results occurred with the inconsistency of which initial level of susceptibility demonstrated the greatest improvement. Most behavioral research indicated that moderately and highly susceptible subjects improved

the most. This did not, however, occur consistently. Other studies demonstrated that low susceptibility subjects improved the most (Burns, 1976, 1977; Diamond, 1972; Diamond et al., 1975; Diamond, 1977; Gur, 1974; Kinney & Sachs, 1974; Perry, 1977; Sachs, 1971). The researchers, in these cases, did not apply the behavioral principle of categorizing the suggestions into response classes.

In a study that partially addressed these inadequacies, Katz (1979) compared the effectiveness of a social-learning-based behavioral training procedure, with that of a traditional sleep/trance eye-fixation hypnotic induction. Katz only used low and medium level subjects in order to better track any resulting changes. He did not use highly susceptible subjects due to concerns of a ceiling effect. In an effort to begin to address subject history, during the social-learning-based intervention, the researcher first demonstrated (modeled) each suggestion and then the subject practiced the suggestion when not hypnotized. Additionally, while practicing the modeled suggestion, the subject would discuss cognitive strategies for enhancing the experience of the suggestion with the researcher. Results showed the social-learning-based behavioral program to be more effective for improving susceptibility levels as compared to the traditional trance induction method.

Unfortunately, the presence of several methodological deficits greatly diminished the full potential of this research effort. First, although Katz primarily intended to compare the two differing techniques for modifying susceptibility levels, this did not occur due to the absence of any training procedures for the traditional

trance group. Second, and more importantly, due to the greater reliance on the social-learning paradigm and the confounding factors in the research design, Katz's conclusions require reevaluation. Katz identified the "observational learning and cognitive imitation" (p. 121) components as the causal agent of change in subject hypnotizability levels. An alternative behavioral interpretation of these results posits that the direct practice of the suggestions provided the subjects with the necessary history to improve their responsiveness to suggestion. Unfortunately, due to the inadequate research design of the study, the direct contributions of the observational learning and cognitive imitation components cannot be determined. As a result, both theoretical positions (behavioral and social-learning paradigm) remain viable until improved research efforts provide the necessary empirical data to draw more precise conclusions.

Although behaviorally based research investigating hypnosis has been conducted, little theory-oriented research has been completed. A recent annual review on hypnosis (Kihlstrom, 1985), failed to offer a behavioral perspective as among the prevailing approaches. With the exception of references to the work of Barber (1979) and Barber, Spanos & Chaves (1974) within an empirical social psychology framework, little mention of behavior theory occurred. Although, generally acknowledged that hypnosis and its behavioral application within behavior therapy share a great deal of similar features Weitzenhoffer (1972) notes that the clear blending of the two approaches seems only apparent in "systematic desensitization for producing relaxation or enhancing imagery" (pg. 71). Weitzenhoffer further notes that the

lack of additional behavioral applications and research efforts combining these two approaches is "puzzling" (p. 71).

Speculation as to why this dearth of theory based research exists center around several themes. Weitzenhoffer (1972) speculated the paucity of theoretically based behavioral research with hypnosis resulted from much of the relevant literature in hypnotherapy being published before the clinical application of a behavioral approach (i.e., behavior therapy) became a recognized branch of psychotherapy. Spinhoven (1972) speculated that once behavior therapy developed its own position within the psychology field (c. 1960) it established its own credibility by comparing the effectiveness of its approaches unto itself rather than alternatively based theories of psychotherapy (e.g., single case research designs, control conditions). This focus kept the behavioral community's research within itself and prevented an effective analysis of hypnosis. Finally, Spinhoven (1987) and Weitzenhoffer (1972) speculated that behavior theory did not embrace hypnosis within its realm due to the inadequacies of either the classical conditioning paradigm (S-R Pavlovian) or the three term operant paradigm (A-B-C) to explain the phenomenon of hypnosis.

In short, due to conditions not favorable to their coalescence, no systematic effort to provide a satisfactory behavioral interpretation of the phenomenon of hypnosis in behavioral terms has occurred. As a result the existing behavioral research with hypnosis has not effectively applied several key behavioral principles.

First, and of primary importance: is subject history. When hypnotized, a person continues to exhibit behaviors, although the

rate of behaviors emitted changes. These behaviors reside within the response class of behaviors controlled by the conditions present for the individual during the hypnosis process. A behavioral perspective attributes the initial ability of some subjects to respond better to hypnosis suggestions (i.e., medium and high susceptibility subjects) as a result of their previous histories having strengthened the class of behaviors similarly controlled by the environmental conditions and verbal behavior of the operator present during hypnosis. As a result, these individuals more easily respond to hypnosis suggestions and have a rating of moderately to highly hypnotizable. For others (i.e., low susceptibility subjects), the suggested behaviors during hypnosis have weaker strength due to the absence of the necessary history, which would result in stronger responses evoked by the environmental conditions and operator's verbal behavior during the hypnosis process.

From a behavioral perspective, if an organism has not had adequate contact with the necessary prerequisite history such that the evoking of a particular response occurs in the presence of a particular environmental stimulus, no amount of attention to antecedent and/or consequent variables will result in the evocation of the desired response; except in those rare accidental cases. Most behavioral responses occur when an individual responds to the multiple control of the numerous variables present in the environment. Applying behavioral and operant procedures in an effort to improve successful responding to hypnosis suggestions (Kinney & Sachs, 1974; Sachs & Anderson, 1967; Springer et al., 1977) without first insuring

the presence of the necessary prerequisite history, equates to the utility of applying behavioral procedures in an effort to improve a subject's responding to German instructions without first insuring the subject has the necessary prerequisite history of understanding German. Behavioral research must first ensure the presence of the necessary history for a subject during hypnosis and then attend to strengthening these responses through antecedent and consequent controls.

A second behavioral principle of major importance heretofore inadequately applied in behavioral research, has been the categorization of the experimental treatment test suggestions into response classes. Behavior, exists within classes. These classes have been categorized into two types: functional and topographical. Functionally similar behaviors appear different from one another but result in the same consequence for the organism. Topographically similar behaviors appear identical to one another but can have different consequential outcomes. Similarity in function or topography relates behaviors within each of these respective classes to one another. Behavioral principles indicate that strengthening one member (i.e., specific behavior) of a functionally related class of behaviors indirectly strengthens the other members of the same response class (Skinner, 1953). Previous behavioral research with hypnosis has not delineated the various test suggestions into response classes (categories) which would permit a more precise analysis of any resulting susceptibility improvements in relation to the specific response classes. This lack of classification of the suggestions may begin to

explain why previous studies appeared randomly successful: By not addressing the type of classification of the suggestions training procedures and subsequent dependent measures could be based in different response categories. As a result, previous studies appeared to train in one category but assess outcome measures in another. Those previous studies, which by chance covaried their training and dependent measure response class categories, should have noted improved hypnotic susceptibility. Those studies that did not covary the training and dependent measure response class categories, should have noted little or no change in hypnotic susceptibility levels. Those studies that mixed various training and dependent measure response class categories should have noted mixed outcome results.

A third area frequently ignored by the behavioral research in hypnosis has been the inclusion of a dependent measure to assess whether resulting changes in research based hypnotic susceptibility levels generalize to a more clinically relevant dimension such as pain tolerance and threshold. As previously noted, behavioral research has demonstrated improved hypnotic susceptibility outcomes as assessed by research based dependent measures or hypnotizability scales. This has not been followed, however, with an assessment to determine if this research based improvement has relevant meaning (is generalizable) to clinical applications. As Spinhoven (1987) noted previous research efforts lack "the use of multiple outcome measures..." (p. 23) and should be strongly considered for future research.

Statement of the Problem

A review of the literature indicates that Mesmer's initial discovery and application of hypnosis gave rise to what researchers consider the early framework of both modern hypnosis and general psychodynamic treatment. Both the Paris School and the psychoanalytic community trace their perspective of hypnosis as a more permanent state to this initial discovery and application. The Nancy School in France practiced an opposing view of hypnosis which considered hypnosis a modifiable phenomenon. As a result of not having been embodied within a prominent theoretical orientation less exploration and research has been conducted exploring hypnosis as a modifiable phenomenon until recently. As a part of the alternative view of hypnosis behavioral research has demonstrated techniques for improving hypnotic susceptibility levels.

Within the behavioral research literature Diamond (1972, 1974) and others (Bullard & DeCoster, 1972; Burns, 1976; Cooper, Banford, Schubot, & Tart, 1967; Sachs & Anderson, 1967; Springer et al., 1977) initiated the development of effective training techniques for modifying hypnotic susceptibility based on operant and informational control procedures (Diamond, 1977, 1982). More recently, Spanos and associates, also initiated research to modify hypnotic susceptibility through interventions based on a social psychology (behavioral) perspective. This research attempted to improve hypnotic susceptibility by improving subject's attitudes, motivations and expectancies toward responding to hypnotic suggestions (Spanos, Kennedy & Gwynn,

1984). Although often referenced as a "behavioral" perspective, the social psychology approach falls short of effectively representing the behavioral perspective due to the heavy focus on (unnecessary) mentalistic constructs and processes difficult to effectively control, measure, and manipulate. Equally inadequate, behavioral studies using operant and informational control techniques have not fully addressed the theoretical issues of prerequisite subject history and response class categorization of the hypnosis suggestions. Additionally, methodological weaknesses of inadequate control groups and confounding research designs, limit the appropriate conclusions which may be drawn from these studies.

A low susceptible clinical population could directly benefit from improved responsiveness to hypnosis suggestion. With effective modification of hypnotic susceptibility, this group could become more amenable to the many medical, dental, and psychological benefits of appropriate hypnosis applications. To date, however, the behavioral research conducted with hypnosis has not adequately applied the necessary techniques nor methodological controls to further promote the effective development and exploitation of this phenomenon.

This study investigates the effectiveness of a behaviorally based program specifically designed to address the theoretical limitations and methodological errors of previous studies by: (a) focusing on the modification of hypnotizability levels through providing the necessary prerequisite history designed to strengthen the behavioral repertoire and response class members of the behavior evoked by the stimulus condition of a suggestion item, (b) categoriz-

ing the test suggestions into response class categories to ensure that training and subsequent dependent measure assessment will address the same categories, (c) providing the necessary methodological controls to ensure that the appropriate level of research investigation and generalization of the results can occur, and (d) including a dependent measure to assess the functional relationship between changes in levels of pain threshold and pain tolerance as a function of changes in hypnotic susceptibility.

This study examines the effects of a specific behavioral training program on the outcomes of standardized suggestion items which measure hypnotic susceptibility and the program's effects on the outcomes of a research based measure for assessing levels of pain threshold and pain tolerance. The study examines two patterns of improvement or changes in hypnotizability scores and changes in levels of pain threshold and pain tolerance as a function of selective training within specific categories of the standardized suggestion items. One pattern involves improvement in hypnotic susceptibility on only similar suggestion items for which training occurred (within class members). A second pattern of change involves generalization or the improvement of subject responsiveness to suggestion items for which no direct training occurred (between class members). Both cases also examine improvement in the levels of pain threshold and pain tolerance scores as a function of subject training.

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Hypotheses to be Tested

Hypothesis One

Significantly greater improvement will occur in the mean hypnotizability level of the experimental groups when compared to the control groups.

Hypothesis Two

Significantly greater improvement will occur in the mean hypnotizability level of the Within Class experimental group's unrehearsed suggestions of the same type suggestion class (i.e., motoric) when compared to the control group.

Hypothesis Three

Significantly greater improvement will occur in the mean hypnotizability level of the Between Class experimental group's unrehearsed suggestions of non-similar type suggestion class (i.e., cognitive) when compared to the Within Class experimental group and both control groups.

Hypothesis Four

Significantly greater improvement will occur in the mean change scores for the pain threshold and pain tolerance cold pressor measures of both experimental groups when compared to both control groups.

CHAPTER II

METHODOLOGY

Setting

Located in Kalamazoo, Michigan, Western Michigan University has a student population of 27,000. Half way between Chicago and Detroit with a population of 200,000, Kalamazoo blends elements of urban and rural settings. Interventions for all groups and testing for all subjects occurred at the Western Michigan University Psychology Clinic located in Wood Hall. The room used for the study had a large easy chair for subject use and a one-way mirror. Standard fluorescent lighting and white noise devices provided an environment equivalent to a standard therapy room. The subject sat across from and faced the experimenter. Typically one to three observers collected collateral data from behind the one-way mirror during each session.

Subjects

Volunteer undergraduate students enrolled in courses at Western Michigan University in the College of Arts and Sciences participated as subjects in this study. One hundred twenty-five students participated in the initial screening phases of the program with a final 35 completing the full study. Participants ranged in age from 18 to 34 years and had no previous experiences with hypnosis. Nineteen

females and 16 males completed the study.

Procedures for Protection of Human Subjects

The Western Michigan University Human Subjects Institutional Review Board (HSIRB) reviewed and approved the study proposal, design, and protocol for the use of human subjects. The HSIRB assigned the study Project Number: 91-06-14 and approved it on November 14, 1991 (see Appendix A).

Procedure

Recruiting of Participants

The recruitment of participants occurred at the beginning of each semester during the duration of the study. With prior instructor approval an announcement at the beginning of undergraduate classes provided information about a creative imagination study conducted at the Western Michigan University Psychology Clinic. During the first two semesters of the study interested participants completing the full program could receive one semester credit with any financial obligation for the credit being the responsibility of the participant. Only two subjects utilized this option. As a result of a Western Michigan University policy change, during the last three semesters of the study, the recruitment announcement did not include the option for the one semester credit. Both recruitment announcements provided information about: (a) the time frame required for participation in the study; (b) the initial screening

process; (c) the requirement of full study participants to immerse their hand in cold water (0 to 2 degrees Celsius) for no longer than five minutes, for six trials, during three different phases of the study; (d) the voluntary nature of participation; (e) the right to withdraw from the study at any time; and (f) encouragement to complete the entire study. Interested volunteers: (a) provided their name and telephone number on a volunteer sheet by the end of the respective class period, or (b) contacted the Western Michigan University Psychology Clinic and schedule an initial session.

Selection of Participants

Criteria for initial inclusion in the study required subjects to express interest in the study in the manner outlined above. Of the 125 initial volunteers, 35 subjects completed the full study. A lower subject screening had been anticipated to assist in statistical processing with larger group sizes. Each participant received an explanation of the study and the consent forms (see Appendices B and C). Participants then signed the consent forms in the presence of a researcher during the initial screening and assessment procedures of Phase I.

Four psychometric screening instruments screened all subjects for continued participation in the study:

1. A social desirability scale screened for any tendency to over-comply with demand suggestions (Crowne & Marlowe, 1960).
2. A Hostility Scale screened for lack of trust or defensiveness, as indicated on the screening instrument's "Negativity" and

"Suspiciousness" subscales (Buss & Durkee, 1957).

3. A Symptom Checklist-90-Revised (SCL-90-R) (Derogatis, Rickels, & Rock, 1976) screened for the presence of psychological disturbance.

4. The Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A) (Shor & Orne, 1962), assessed subject initial hypnotizability level.

Participation in the full study required no greater than a moderate range of hypnotizability (a score of zero to nine) on the HGSHS:A. Screening of the initial 125 volunteers resulted in 62 being ineligible due to exceedingly high levels of initial hypnotizability levels per study requirements at the time of the screening.

Subjects excluded due to an elevated SCL-9-R score(s) (e.g., a T-score of 63 or greater) received appropriate counseling resource information for use at their discretion. Two subjects required screening due to elevated SCL-90-R scores.

Screening of subjects also occurred for those assessed as high on the Hostility Scale (e.g., a score of three or greater on the Negativity subscale or a score of six or greater on the Suspiciousness subscale) and/or high on the Social Desirability Scale (e.g., a score of 20 or more). No screening of subjects due to elevated Hostility or Social Desirability scores occurred.

Finally, screening from further participation occurred for those subjects with any previous hypnosis contact and/or receiving psychotherapy of any kind. These two factors did not result in the screening of any subjects.

Assignment to Treatment Groups

Random assignment of the 35 subjects completing the full program to the four treatment conditions occurred as follows: Phase I scores of the HGSHS:A resulted in initial subject assignment to either a low hypnotizability group or a medium hypnotizability group. Random assignment of subjects in each respective group to one of the four treatment conditions then occurred (see Figure 1). The initial classification of subjects into low and medium hypnotizability groups for random assignment to the treatment conditions occurred for the purposes an early study effort to apply the research hypotheses to differing hypnotizability level subjects. The full study did not consider these classifications in the final analyses of the study hypotheses.

Eleven subjects initially eligible for the full study did not complete the study for unknown reasons. The final statistical analyses did not include their results. No other subject attrition occurred during the study. This resulted in the following subject group size for each of the four treatment conditions: Within Class Group = 10; Between Class Group = 9; Contact Control Group = 10; and the No Contact Control Group = 6.

Dependent Measures

This study used five instruments in various combinations which resulted in a total of seven dependent measures. This study also used one contact control assessment instrument.

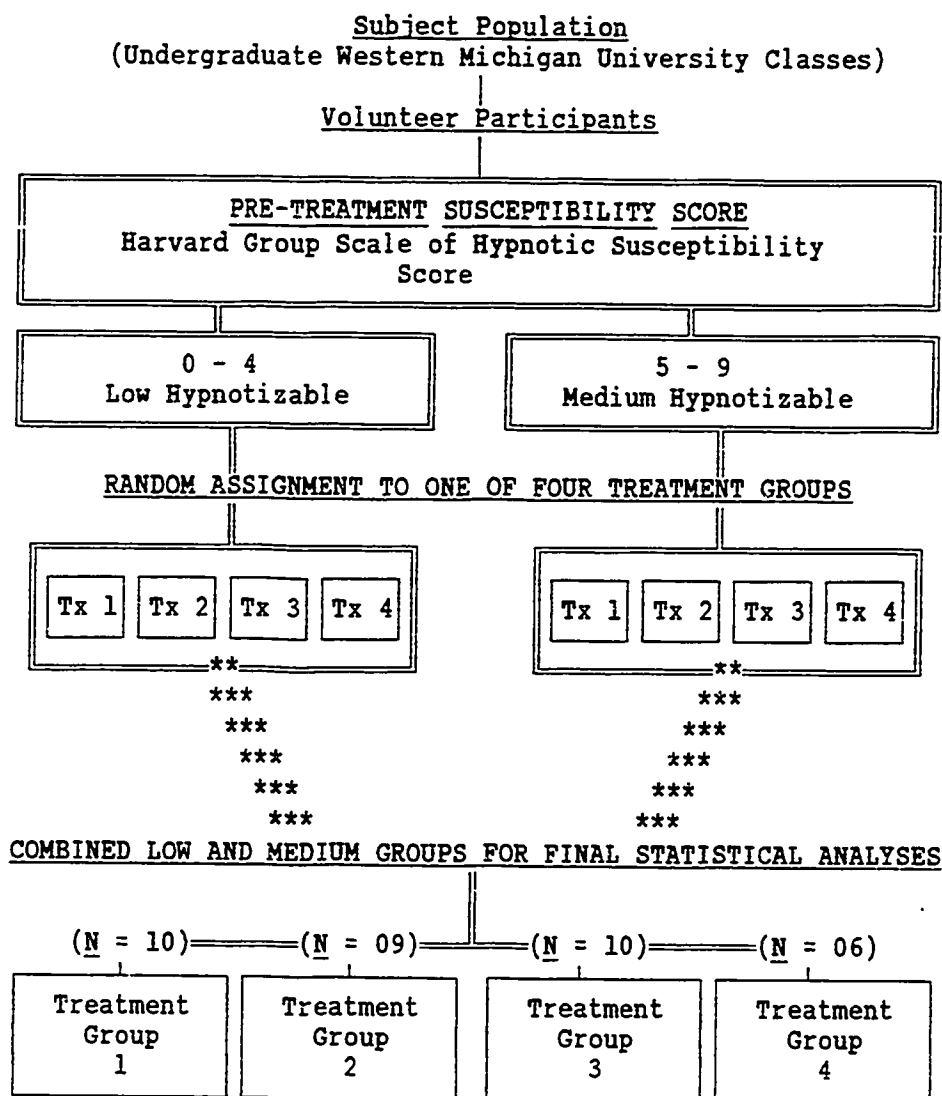


Figure 1. Chronology of Subject Assignment to Treatment Groups.

Harvard Group Scale of Hypnotic Susceptibility, Form A

The Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) (Shor & Orne, 1962) assessed the initial level of subject hypnotizability within a (optional) group format through the use of an audio tape presentation. Shor & Orne (1962) noted the following:

The HGSHS, Form A is an adaptation for group administration with self-report scoring of the original, individually administered and objectively-scored Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A) (Weitzenhoffer & Hilgard, 1959). This revised version can be administered to groups of unlimited size. Form A is designed to be given either as the first or as a later hypnotic susceptibility testing procedure. It can be administered to the same individual more than once. (p. 27).

Normative data "are congruent" (p. 28) to the individually administered version: (a) High Level of Susceptibility (8-12) = 24%, (b) Medium Level of Susceptibility (5-7) = 31%, and (c) Low Level of Susceptibility (0-4) = 45%. Induction and hypnotic susceptibility testing using the HGSHS:A requires approximately 50 minutes. The HGSHS:A consists of 12 self-report items. "Scoring is simply + or - for each of the 12 items. Maximum total scale score is 12 pluses." (p.38).

To address reliability and validity issues Shor and Orne (1963) reported a mean average of 7.39 for the Group Form when administered to a group of 132 college students and a mean average of 6.92 for the individual form when administered to 281 college students. A comparison of simultaneous self-report scoring and scoring by raters of 7 of the 11 behavioral items yielded a correlation of .82. The self-report scores averaged slightly higher than the rater scores; for the full 12 items, this discrepancy would equal an average of 7/10ths of one item (Shor & Orne, 1963)" (p. 38).

The questions of the HGSHS:A assess the subject's recall of their responsiveness to the suggestions presented on an audio tape. Sample items from the HGSHS:A include: "You were next told to extend your left arm straight out and feel it becoming heavy as though a

weight were pulling the hand and arm down. Would you estimate that an onlooker would have observed that your hand lowered at least six inches (before the time you were told to let your hand down deliberately)?"; and "You were next told to become aware of the buzzing of a fly which was said to become annoying, and then you were told to shoo it away. Would you estimate that an onlooker would have observed you make any grimacing, any movement, any outward acknowledgement of an effect (regardless of what it was like subjectively)?"

Stanford Hypnotic Susceptibility Scale, Form A

The Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A) (Weitzenhoffer & Hilgard, 1959) assessed individual subject hypnotic susceptibility through direct operator induction. Weitzenhoffer and Hilgard (1959) primarily developed the SHSS:A for hypnosis research with subjects having no prior hypnosis experience (Udolf, 1987). The SHSS:A consists of 12 suggestion items. Standardized scoring forms provide scoring criteria for a score of a + or - on all items.

Standardization of Form A on a sample of 124 college students resulted in the following normative data: High Level of Susceptibility (8-12) = 24%; Medium Level of Susceptibility (5-7) = 31%; and Low Level of Susceptibility (0-4) = 45%. Test-retest reliability averaged 0.83. As noted by Watkins (1986):

The SHSS:A is today the most thoroughly researched instrument for measuring potential response to hypnosis. Every serious investigator in the field should become familiar with it, and it is recommended that every student in the area of hypnosis, scientist, or clinician, should at least administer it one or more times. (p. 89).

Example items of the criterion based scoring of the SHSS:A suggestions include: incomplete separation of fingers at end of 10 seconds for the finger lock suggestion to obtain a + score; and, for the verbal inhibition suggestion, the name must be unspoken for 10 seconds to obtain a score of +.

Modified Stanford Hypnotic Susceptibility Scale, Form A

The modified SHSS:A (mSHSS:A) used in this study consisted of Items 1 through 7 and items 10 and 11 of the SHSS:A. The mSHSS:A assessed subject hypnotizability in relation to motoric based suggestion items (e.g., Item 5: incomplete separation of fingers at end of 10 seconds). The current study developed the following response classes definition for the purposes of this study:

MOTORIC: involving physical behavior or movement observed through motion of parts of the body (e.g., hand, arm).

1. Compliance: suggesting that something will happen; presence of overt physical behavior (e.g., arm moves as suggested).
2. Inhibition: suggesting something will not happen or that the subject cannot do something; absence of overt physical behavior (e.g., arm does not move or bend).

Although not separately administered, these items received separate analysis in order to assess treatment effects on suggestions classified within the motoric response class category. Being developed for the purposes of this research study resulted in no current normative data for the mSHSS:A.

Modified Creative Imagination Scale

Wilson and Barber (1978) originally developed the Creative Imagination Scale (CIS) to make suggestions to the subject in a permissive manner, as opposed to the more common authoritarian style of most other susceptibility scales (Udolf, 1987). The CIS consists of ten suggestion items with a split-half reliability coefficient of 0.89. The CIS correlates 0.28 with the HGSHS:A. The low correlation between the HGSHS:A and the CIS results from the CIS's ability to primarily measure imagery and imagination.

This study only used suggestion Items 3 through 8 of the CIS. These items assessed a subject's responses to suggestions which required an alteration in sensory perception. The other suggestion items of the CIS did not. Sample items from the utilized CIS suggestions include: "In the third test you were asked to imagine that Novocain had been injected into your hand and it made two fingers feel numb. Compared to what you would have experienced if Novocain had actually made the two fingers feel numb, what you experienced was: 0 = 0% Not at all the same, 1 = 25% A little the same, 2 = 50% Between a little and much the same, 3 = 75% Much the same, and 4 = 90+% Almost exactly the same"; and "In the sixth test you were asked to think back to a time when you heard some wonderful music and to re-experience hearing it. Compared to what you would have experienced if you were actually hearing the music, what you experienced was: 0 = 0% Not at all the same, 1 = 25% A little the same, 2 = 50% Between a little and much the same, 3 = 75% Much the same, and 4 =

90+% Almost exactly the same."

The modified CIS (mCIS) used in this study consisted of Items 3 through 8 of the CIS in combination with Item 9 of the SHSS:A. These combined items assessed a subject's responses to suggestions which required an alteration in sensory perception. The current study developed the following response classes definition for the purposes of this study:

SENSORY: involving interoceptive or proprioceptive perceptions of stimulus in the environment observed through verbal report/behavior (e.g., smelling ammonia).

1. Compliance: suggesting that something will happen; presence of correct verbal behavior/report in response to environmental stimuli (e.g., smelling a rose fragrance in the presence of a rose).
2. Inhibition: suggesting something will not happen or that the subject cannot do something; absence of correct verbal behavior/report (e.g., smelling a rose fragrance in the presence of an orange).

Although not separately administered, these items received separate analysis in order to assess treatment effects on suggestions classified within the sensory response class category. Being developed for the purposes of this research study resulted in no normative data for the mCIS.

Modified Penn State Scale of Hypnotizability, Form D

Mitchell and Lundy (1986) developed the Penn State Scale of Hypnotizability, Form D (PSSOH:D) to better understand how relaxation and imagery contribute to hypnotic responding. The PSSOH:D consists of 13 items administered to a subject while in a group or individual-

ly. Mitchell and Lundy (1986) provided the following normative data: "As the result of difficult items designed to add top to the scale, the distribution is skewed. With a range from 0 to 26, the scores fall much more at the low end of the scale (0,1, or 2) than at the high end (24, 25, or 26)....For the (undergraduate) population from which this sample was drawn, the mean of 7.10 and standard deviation of 5.20 were based on the 12 basic items, excluding the amnesia score." (pp. 100-101).

The modified PSSOH:D (mPSSOH:D) used in this study consisted of Items 2,4, and 6 of the PSSOH:D in combination with items 8 and 12 of the SHSS:A. Items 2, 4 and 6 of the PSSOH:D assess a subject's responses to suggestions which require an alteration in cognitive perception. The other items of the PSSOH:D do not. Items 2, 4, and 6 of the PSSOH:D read as follows: (2) "Agnosia - Pencil: Defining Pencil: A. If you could not think of the meaning of pencil., B. If you felt the effect somewhat., C. If you felt no effect at all.; (4) Word Association - Dog: Association for the word 'dog.' A. If you could not remember a word association for 'dog.', B. If you felt the effect somewhat., C. If you felt no effect at all.; and (6) Acalculia: Number 7. A. If you could not add $5 + 7$., B. If you felt the effect somewhat., and C. If you felt no effect at all. The mPSSOH:D used the Verbal Inhibition suggestion (the name must be unspoken for 10 seconds to obtain a score of +) and the Amnesia Test suggestion (3 or fewer suggestion items recalled to obtain a score of +) from the SHSS:A. These combined items assessed a subject's responses to suggestions which required an alteration in cognitive perception.

The current study developed the following response classes definition for the purposes of this study:

COGNITIVE: involving private events or covert activities as described in the subject's self-report (e.g., the subject's name).

1. Compliance: suggesting that something will happen; presence of correct verbal behavior/report (e.g., correct report of name).
2. Inhibition: suggesting something will not happen or that the subject cannot do something; absence of correct verbal behavior/report (e.g., inability to report name or incorrect report of name).

Although not separately administered, these items received separate analysis in order to assess treatment effects on suggestions classified within the cognitive response class category. Being developed for the purposes of this research study resulted in no normative data for the mPSSOH:D.

Cold Pressor Test

A cold pressor apparatus measured levels of pain threshold and pain tolerance. Previous hypnosis research established the use of the cold pressor apparatus for the measurement of analgesic effects (Blitz & Dinnerstein, 1971; Peckerman, Saab, McCabe, Skyler, Winter, & Schneiderman, 1990; Sachs, 1970; Spanos, Kennedy & Gwynn, 1984). As the cold pressor apparatus for this study a 34 Quart Thermos cooler with the dimensions 20" x 11" x 12" held ice and water between zero and two degrees Celsius in which subjects immersed their hands. A modified Styrofoam cover with a plastic mesh basket allowed sub-

jects to immerse their hand into the cold water without coming in direct contact with the ice. Subjects indicated threshold level of pain by moving the index finger of the un-immersed hand. Subjects indicated pain tolerance by either removing their hand from the water or after reaching the maximum time limit of five minutes. Stopwatch-es designed to record both pain threshold (split time) and pain tolerance times recorded the cold pressor measurements. A standard indoor/outdoor thermometer with markings of both Celsius and Fahrenheit degrees measured water temperature.

Total Hypnotic Susceptibility Scale

The Total Hypnotic Susceptibility Scale (THSS) compiles the suggestion items of the SHSS:A, mSHSS:A, mCIS, and mPSSOH:D scales described above. The THSS served as a total hypnotic susceptibility measure in determining if general (i.e., all response class categories combined) hypnotizability levels changed as a result of treatment interventions. Although not separately administered, these combined items received separate analysis. Being developed for the purposes of this research study resulted in no normative data for the THSS.

Western Michigan Scale of Directed Practice and Imagination

Trulsen and Tsegaye-Spates (1991) developed the Western Michigan Scale of Directed Practice and Imagination (WMSDPI) for use in this study as a contact control assessment agent with the Contact Control treatment intervention (see Appendix D). Although not a

dependent measure a description helps provide for thoroughness of the research design. The scale consists of six items. Subjects first experienced experimenter directed contact with a WMSDPI scale item and then reported the level of realism when imagining the item.

Examples of the WMSDPI include: "On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand cupping your ear?"; and "On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine being in a dimly lighted tunnel?" Researchers used the Contact Control Treatment Measurement Form to record subject responses (see Appendix E). Being developed for use only as a contact control agent for this study resulted in no normative data for the WMSDPI.

Intervention

Experimental Design

This study utilized a pretest - posttest group design (see Figure 2) with four different treatments administered between tests. This group design allowed maximal assessment of the effects of the four treatment interventions. A single subject design would not allow clear assessment of the treatment effects due to probable learning effects and artifacts from repeated exposures to the dependent variables.

Independent Variable

The independent variable consisted of the type of hypnotic suggestion used for each experimental treatment group (i.e., motoric, sensory, and cognitive). This study used two experimental treatment groups, a contact control treatment group and a no intervention control treatment group for a total of four groups. One experimental treatment group assessed the effects of generalization on hypnotic susceptibility as a function of rehearsal items within a response class (i.e., Within Class Group). The other experimental treatment group assessed the effects of generalization on hypnotic susceptibility as a function of rehearsed items across response classes (i.e., Between Class Group). Neither control group received a treatment intervention between measures. The No Contact Control treatment group had no contact with the study in addition to no treatment between measures. The Contact Control treatment group engaged in similar exercises with a researcher to match averaged times and interactions with that of the experimental groups. On average the total induction and hypnosis process required 70 minutes to complete.

Personnel

Two caucasian graduate students from a doctoral level clinical psychology program, one male and one female, and two female senior undergraduate students from a baccalaureate level psychology program, one Singapore International student and the other caucasian, conducted the hypnosis component throughout the study. All researchers

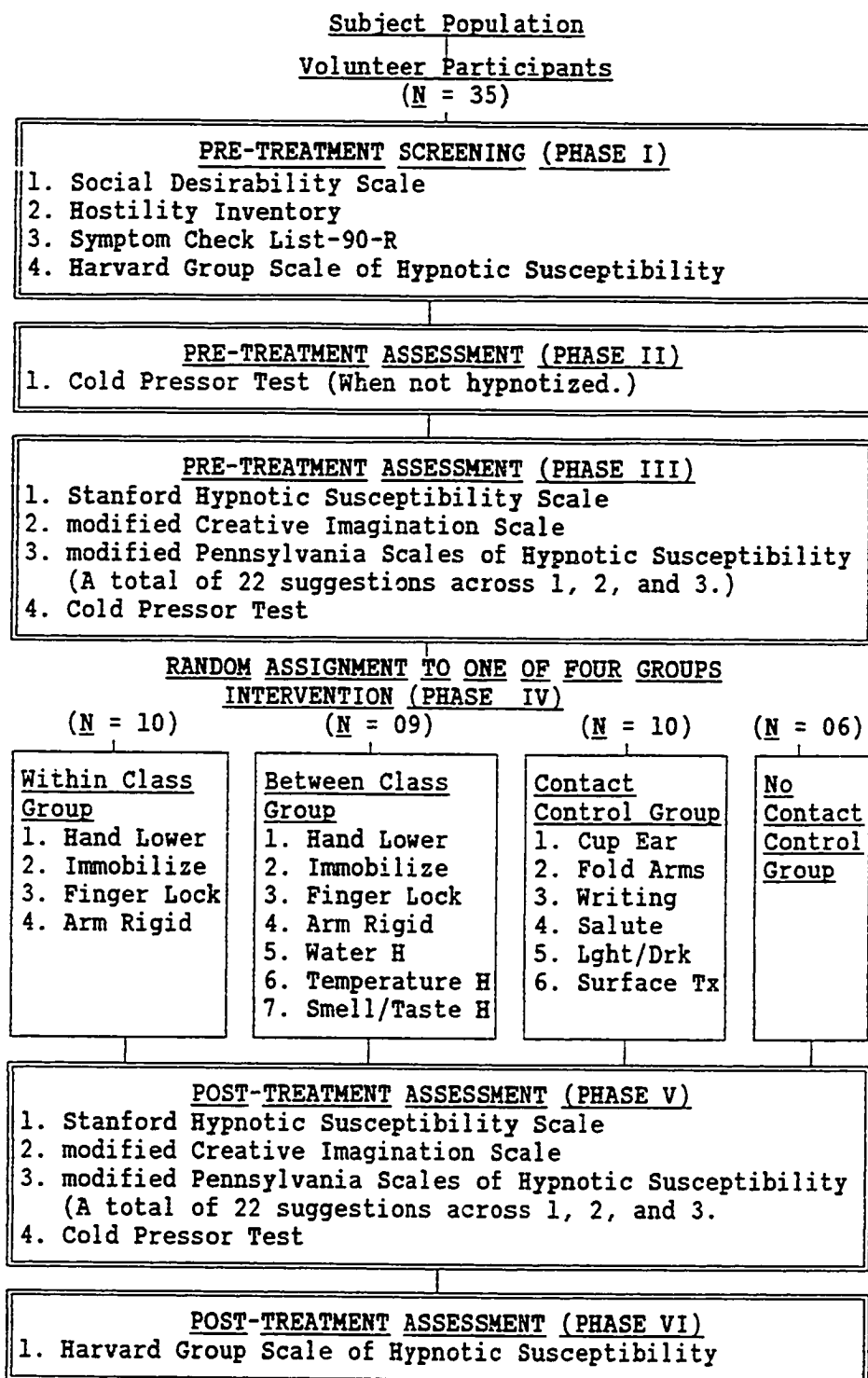


Figure 2. Experimental Design: Chronology of Screening, Assessment and Intervention.

completed a hypnosis training program which included review of a video tape developed by the principal investigator to train the researchers in a standardized procedure to a criterion level performance (see Appendix F). All students conducting the hypnosis components reviewed their understanding and procedural skills with Dr. Richard Tsegaye-Spates, a licensed Clinical Psychologist, with over ten years of clinical and theoretical experience with hypnosis.

Six other senior undergraduates from a baccalaureate level psychology program assisted as researchers in the study: four caucasian females, one Singapore International student, and one caucasian male. They functioned as both observers and facilitators during Phases without hypnosis procedures and only functioned as observers during Phases with hypnosis procedures. All completed a training program developed by the principal investigator for the facilitation and observations they conducted (see Appendix F). All of these researchers trained to a 95% criterion for accurately assessing the dependent measures they independently recorded from behind one-way mirrors. Re-calibration of the independent observers susceptibility assessment skills resulted when less than 95% accuracy occurred. This, however, did not occur.

Procedures

Phase I

Phase I screened subjects with no previous hypnosis experience using the: Social Desirability Scale; Hostility Inventory; and

Symptom Check List-90-R. Once screened by these instruments for tendencies of over compliance to experimenter requests, exceptional resistance to the experimenter's requests, and/or indications of mental health concerns, the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) assessed initial hypnotic susceptibility level.

Administered through the use of an audio tape, subjects self-assessed their responses to the HGSHS:A. The researcher conducting the session compiled the scores. Subjects assessed by the HGSHS:A as medium to low responders (e.g., subjects scoring below 9) remained eligible for Phase II. High responders (e.g., subjects scoring 9 or higher) did not participate further in the study.

Phase II

Phase II assessed subjects for baseline cold pressor results while not hypnotized. The cold pressor assessed levels of pain threshold and pain tolerance following hand immersion in the cold water. Following instructions read by the researcher conducting the session, subjects immersed each hand a total of three times, in an alternating order with a two minute pause between each hand immersion (see Appendix G). One to three trained independent observers viewed the cold pressor pain threshold and pain tolerance procedures from behind a one-way mirror and independently recorded their results. The researcher conducting the session and all observers independently recorded their cold pressor measures on a form developed by the primary researcher for the current research (see Appendix H). The

final cold pressor dependent measures recorded for each subject resulted from an averaged pain threshold and pain tolerance time across each respective hand and from all independent research observers.

Phase III

Phase III assessed subjects for baseline measures of hypnotic susceptibility in response to suggestions using the: Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A); modified Stanford Hypnotic Susceptibility Scale, Form A (mSHSS:A); modified Creative Imagination Scale (mCIS); and the modified Pennsylvania Scales of Hypnotic Susceptibility, Form D (mPSSOH:D). See Table 1 for the hypnotic susceptibility test suggestions and their respective assigned response class categorization for the current research study. Following this baseline susceptibility assessment and while remaining hypnotized the cold pressor assessed baseline levels of pain threshold and pain tolerance while hypnotized.

One to three trained independent observers viewed the hypnotic susceptibility, pain threshold, and pain tolerance procedures from behind a one-way mirror and independently recorded their results. Random assignment of the subjects within the low and moderate susceptibility classification, respectively, to one of the four treatment groups for the intervention/Phase IV procedures completed Phase III.

Table 1

Scale Items and Response Categories Developed for the Present Study

<u>The Stanford Hypnotic Susceptibility Scale</u>				
	<u>Test Suggestion</u>		<u>Category</u>	
1.	Postural sway		Motoric	
2.	Eye closure		Motoric	
3.	Hand lowering (left)		Motoric	
4.	Immobilization (right arm)		Motoric	
5.	Finger lock		Motoric	
6.	Arm rigidity (left arm)		Motoric	
7.	Hands moving together		Motoric	
8.	Verbal inhibition (name)		Cognitive	
9.	Hallucination (fly)		Sensory	
10.	Eye catalepsy		Motoric	
11.	Post-hypnotic (change chairs)		Motoric	
12.	Amnesia test		Cognitive	
<u>Creative Imagination Scale</u>				
	<u>Test-Suggestion</u>		<u>Category</u>	
3.	Finger Anesthesia		Sensory	
4.	Water "Hallucination" (drinking cool mt water)		Sensory	
5.	Olfactory-Gustatory "Hallucination" (smell & taste orange)		Sensory	
6.	Music "Hallucination" (hearing music)		Sensory	
7.	Temperature "Hallucination" (right hand hot from sun)		Sensory	
8.	Time Distortion (time slows down)		Sensory	
<u>Penn State Scale of Hypnotizability, Form D</u>				
	<u>Test Suggestion</u>		<u>Category</u>	
2.	Agnosia - could not define pencil		Cognitive	
4.	Word association for the word dog: could not remember an associate (cat)		Cognitive	
6.	Acalculia for number 7		Cognitive	
<u>Dissertation Distribution of Scale Items</u>				
	<u>Motoric</u>	<u>Sensory</u>	<u>Cognitive</u>	<u>Total</u>
(Scale)				
Stanford	9	1	2	(12)
Creative	0	6	0	(6)
Penn State	0	0	4	(4)
(Total)	(9)	(7)	(6)	(22)

Phase IV

Experimental Intervention Components of Response Class Generalization

This study attempted to assess generalization effects of rehearsal on hypnotic suggestion items within and between response classes. By strengthening a selected number of responses based on specific hypnotic suggestion items and then testing for improvement in other non-rehearsed items, this study attempts to clarify this pattern of generalization. This controlled research program exposed subjects to corresponding suggested interoceptive and proprioceptive experiences contained in the referenced hypnotic suggestion items in order to introduce into the subjects history, directed response feedback previously outside or at limited strength in their history. This provided the subjects with a supplemental history specific to the hypnosis suggestions. The subsequent posttests of this study examined whether the standard hypnotic susceptibility test environment evoked greater responsiveness to the various suggestions following the subject contact with the researcher controlled environmental experiences.

Experimental Within (Response) Class Group

Subjects assigned to this group came in contact with events designed to provide interoceptive and proprioceptive experiences of involuntary:

1. Hand lowering; a weighted strap placed over the subject's wrist provided the sensation of weight pulling the hand down.

2. Arm immobilization; a weighted bag placed over the subject's right arm inhibited raising the arm.

3. Finger lock; a pair of sewn together gloves did not allow subjects to separate their hands.

4. Arm rigidity; subjects placed their right arm in an ABS plastic tube which prevented their arm from bending.

See Appendix I for the Experimental Within Class treatment condition program. The subject's eyes remained closed during all of the above procedures to promote conditions similar to those during the standard hypnotic susceptibility tests. This also promoted interoceptive and proprioceptive sensory focus on the dimensions being addressed by each respective suggestion. One to three trained independent observers viewed the Experimental Within Class treatment condition program procedures from behind a one-way mirror and independently recorded their results. The researcher conducting the session and all observers independently recorded their Experimental Within Class treatment condition program measures on a form developed by the primary researcher for the current research (see Appendix J). The final Experimental Within Class treatment condition program dependent measures recorded for each subject resulted from an averaged measure from all independent research observers.

Experimental Between (Response) Class Group

Subjects assigned to this group experienced the previously described events for Hand Lowering, Arm Immobilization, Finger Lock, and Arm Rigidity. They also came in contact with events designed to provide experiences of:

1. Water Hallucination; subjects drank refrigerated spring water.
2. Olfactory-Gustatory Hallucination; subjects tasted and identified an orange slice.
3. Temperature Hallucination; subjects placed a hand under a heat lamp to simulate the warmth of the sun.

See Appendix K for the Experimental Between Class treatment condition program. Subjects in this group also kept their eyes closed during these experimenter controlled procedures to promote conditions similar to those during standard hypnotic susceptibility tests. This again promoted interoceptive and proprioceptive sensory focus on the dimensions being addressed by each respective suggestion. One to three trained independent observers viewed the Experimental Between Class treatment condition program procedures from behind a one-way mirror and independently recorded their results. The researcher conducting the session and all observers independently recorded their Experimental Between Class treatment condition program measures on a form developed by the primary researcher for the current research (see Appendix J). The final Experimental Within Class treatment condition program dependent measures recorded for

each subject resulted from an averaged measure from all independent research observers.

Contact Control Group

Assessment of subjects in this group occurred on the same schedule, time frame and in the same manner as described for the above experimental groups. However, during the researcher contact periods, subjects in his group practiced alternative suggestions of:

1. Cupping Ear; subjects cupped an ear as if trying to hear a soft sound.
2. Folding Arms; subjects folded their arms across their chest.
3. Writing; subjects wrote their names on a piece of paper.
4. Salute; subjects raised a hand to their forehead as if saluting.
5. Light-Dark Visual Sensation; subjects experienced a bright light shining toward them and then its removal.
6. Surface Texture Sensation; subjects softly rubbed a piece of sandpaper between their fingers.

See Appendix D for the Contact Control treatment condition program. Subjects in this group also kept their eyes closed during all of the procedures to promote conditions similar to those during standard hypnotic susceptibility tests. This again promoted interoceptive and proprioceptive sensory focus on the dimensions being addressed by each respective alternative suggestion. This group did not practice any of the identical response class items of the depen-

dent hypnotizability measures. One to three trained independent observers viewed the Contact Control treatment condition program procedures from behind a one-way mirror and independently recorded their results. The researcher conducting the session and all observers independently recorded their Contact Control treatment condition program measures on a form developed by the primary researcher for the current research (see Appendix E). The final Contact Control treatment condition program dependent measures recorded for each subject resulted from an averaged measure from all independent research observers.

No Contact Control Group

Assessment of subjects in this group occurred using the same time frame and testing procedures as the other groups. Once assessed on the pretest dependent measures, these subjects continued their standard lifestyle behaviors and then returned for posttest assessment. This group did not practice any of the identical dependent measure hypnotizability items nor any alternative response class items of the Contact Control treatment program.

Phase V

Phase V assessed subjects for post-intervention measures of hypnotic susceptibility in response to suggestions using the: Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A); modified Stanford Hypnotic Susceptibility Scale, Form A (mSHSS:A); modified Creative Imagination Scale (mCIS); and the modified Pennsylvania

Scales of Hypnotic Susceptibility, Form D (mPSSOH:D). (Please see Table 1 for test suggestions.) Following post-intervention susceptibility assessment and while remaining hypnotized the cold pressor assessed post-intervention levels of pain threshold and pain tolerance. One to three trained independent observers viewed the hypnotic susceptibility, pain threshold, and pain tolerance procedures from behind a one-way mirror and independently recorded their results.

Phase VI

The Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) assessed post-intervention hypnotic susceptibility level. Administered through the use of an audio tape subjects self-assessed their responses to the HGSHS:A. The researcher conducting the session compiled the scores.

Administration of the Instruments

Phase I: Pre-treatment Screening

Each subject completed a printed copy of the Hostility Inventory, Social Desirability Scale, and SCL-90-R. The HGSHS:A assessed pre-intervention hypnotic susceptibility. Subjects also completed the HGSHS:A self-report form following the HGSHS:A audio tape presentation.

Phase II: Cold Pressor Baseline Assessment Pre-hypnosis

The cold pressor assessed levels of pain threshold and pain tolerance under non-hypnotized conditions.

Phase III: Baseline Assessment Hypnotized

The SHSS:A, mCIS, and mPSSOH:D assessed baseline hypnotic susceptibility. The cold pressor assessed levels of pain threshold and pain tolerance at baseline under hypnotized conditions.

Phase IV: Intervention

No dependent variable instruments assessed subject baseline or change scores during this phase of the study. The WMSDPI assessed subject contact with the Contact Control treatment group alternative suggestion items.

Phase V: Post-treatment Assessment

The SHSS:A, mCIS, and mPSSOH:D assessed post-intervention hypnotic susceptibility. The cold pressor assessed post-intervention subject levels of pain threshold and pain tolerance while hypnotized.

Phase VI: Post-treatment Assessment

The HGSHS:A assessed post-intervention hypnotic susceptibility. Subjects completed the post-intervention HGSHS:A self-report form following the HGSHS:A audio tape presentation.

CHAPTER III

RESULTS

Chapter III reports the results of the statistical analyses of the data derived from the seven dependent measures used in this investigation: (1) the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A); (2) the Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A); (3) a modified Stanford Hypnotic Susceptibility Scale, Form A (mSHSS:A); (4) a modified Creative Imagination Scale (mCIS); (5) a modified Penn State Scale of Hypnotizability, Form D (mPSSOH:D); (6) the Total Hypnosis Suggestion Scale (THSS); and (7) the cold pressor test.

Three major sections discuss the results. The first section reports the results of the preliminary analyses; the second reports the results of the testing of the hypotheses; and the third section reports various additional analyses and the subsequent results of the testing of the hypotheses. This study used the traditional significance criterion of $p < .05$.

Outcome measures from the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A) resulted in the following distribution of hypnotic susceptibility levels: (a) High Level of Susceptibility (8-12) = 44%, (b) Medium Level of Susceptibility (5-7) = 44%, and (c) Low Level of Susceptibility (0-4) = 16%.

The pretest to posttest change scores on the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A), the Stanford Hypnotic Susceptibility Scale, Form A (SHSS:A), the modified Stanford Hypnotic Susceptibility Scale, Form A (mSHSS:A), the modified Creative Imagination Scale (mCIS), the modified Penn State Scale of Hypnotizability, Form D (mPSSOH:D), the Total Hypnosis Suggestion Scale (THSS), and the cold pressor test constitute the dependent measures for the analysis. Because of the limited group sizes of this study, greater magnitude results must occur in order to detect statistical significance. The limited group sizes of this study therefore present statistical limitations when utilizing this type of experimental design.

Preliminary Considerations

Pre-treatment Differences

A one-way analysis of variance (ANOVA) tested for differences in the pretest scores between the treatment groups for the HGSHS:A, SHSS:A, mSHSS:A, mCIS, mPSSOH:D, THSS, and the cold pressor test. The analysis revealed no statistically significant differences between the treatment groups on any of the dependent measure pretest scores (see Appendices L, M, N, O, P, Q, R, and S, respectively). These results verified the effect of random assignment of subjects to the experimental groups.

Gender Differences

A one-way ANOVA tested for differences between the treatment groups and the gender of the subjects in each treatment group (see Appendix T). The analysis revealed no statistically significant differences between the genders of the four treatment groups. This eliminates the consideration of gender as a variable affecting the results.

Age Differences

A one-way ANOVA tested for differences between the treatment groups and the ages of the subjects in each treatment group (see Appendix U). The analysis revealed no statistically significant differences between the ages of the four treatment groups. This eliminates the consideration of age as a variable affecting the results.

Testing of the Hypotheses

Hypothesis One

Significantly greater improvement will occur in the mean hypnotizability level of the experimental groups when compared to the control groups.

Hypothesis Two

Significantly greater improvement will occur in the mean hypnotizability level of the Within Class experimental group's

unrehearsed suggestions of the same type suggestion class (i.e., motoric) when compared to both control groups.

Hypothesis Three

Significantly greater improvement will occur in the mean hypnotizability level of the Between Class experimental group's unrehearsed suggestions of non-similar type suggestion class (i.e., cognitive) when compared to the Within Class experimental group and both control groups.

Hypothesis Four

Significantly greater improvement will occur in the mean change scores for the pain threshold and pain tolerance cold pressor measures of both experimental groups when compared to both control groups.

A two-way ANOVA with repeated measures performed between the treatment groups on the pre-post change scores of the seven dependent measures tested the hypotheses. This analysis only included those subjects with initial cold pressor pain threshold and pain tolerance scores at or below 250 seconds in order to most effectively assess changes in the cold pressor measures (i.e., a cold pressor ceiling score of 300 seconds required a lower initial threshold and tolerance score in order to assess subsequent changes resulting from treatment effects).

Results from a two-way repeated measures ANOVA performed on the mCIS (sensory) indicated a significant difference in the pre-post

change scores $F(1, 18) = 4.49, p < .05$ (see Table 2). Multiple

Table 2
Significant Two-way Repeated ANOVA Modified Creative Imagination
Scale Scores

<u>N = 22</u>						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
mCIS (sensory)	Experimental Groups	3	24.22	8.07	.11	.95
	Subjects Within Grps	18	1219.12	67.72		
	Repeated Measure (B)	1	19.56	19.56	4.49	.05
	B x Subjects W. Grps	18	78.28	4.34		

comparison tests revealed no statistically significant difference between the pre-post change scores of the respective treatment groups (see Appendix V). Near significance ($F(1, 3) = 7.12, p < .08$) (see Appendix W), however, occurred for the No Contact Control group with a resulting decrease in sensitivity to the mCIS (sensory) items at the post measure. No other statistically significant or near significant results occurred across the remaining dependent measure pre-post change scores (see Appendices X, Y, Z, AA, BB, CC, and DD).

The above two-way repeated measures ANOVAs and subsequent multiple comparison analyses determined that the dependent measures did not show any significant treatment effect. These overall results suggest rejection of the hypotheses. Nonparametric analyses also revealed no consistent pattern of significant results.

Additional Analyses

Due to the small number of subjects in each treatment group an attempt to improve the statistical representativeness of the treatment groups, by reducing the amount of variability, resulted in the combining of the respective experimental and control group dependent measure outcomes for additional analyses. The combined outcome measures of the respective dependent variables of the two experimental groups constituted the new experimental treatment group and the combined outcome measures of the respective dependent measures of the two control groups constituted the new control treatment group. A two-way ANOVA with repeated measures performed between the (combined) treatment groups on the pre-post change scores of the seven dependent measures again tested the study hypotheses. Again, this analysis only included those subjects with initial cold pressor pain threshold and pain tolerance scores at or below 250 seconds as previously described.

Results from a two-way repeated measures ANOVA performed on the (combined) mCIS (sensory) scores indicated a significant difference in the pre-post change scores $F(1, 20) = 4.29, p < .05$ (see Table 3). Multiple comparison tests revealed no statistically significant difference between the pre-post change scores of the respective combined treatment groups (see Appendix EE). Near significance (.07), however, occurred for the (combined) Control group with a resulting decrease in sensitivity to the mCIS (sensory) items at the post measure (see Appendix FF).

Table 3
Significant Two-way Repeated ANOVA Combined Modified Creative
Imagination Scale Scores

<u>N</u> = 22						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined mCIS (sensory)	Experimental Groups	1	4.45	4.45	.07	.79
	Subjects Within Grps	20	1238.89	61.94		
	Repeated Measure (B)	1	19.56	19.56	4.29	.05
	B x Subjects W. Grps	20	91.03	4.55		

Additionally, although not statistically significant a suggestive pattern resulted for the cold pressor measures when comparing pain threshold and pain tolerance change scores of the (combined) Experimental and Control groups across Phases III and V. Although starting at approximately the same levels only the Experimental group's outcomes demonstrated a positive increase in both pain threshold and pain tolerance (see Table 4).

Table 4
Combined Levels of Pain Threshold and Pain Tolerance Change Scores

<u>N</u> = 26 Time in Seconds						
Group	Threshold Time			Tolerance Time		
	<u>Phase III</u>	<u>Phase V</u>	(Cng)	<u>Phase III</u>	<u>Phase V</u>	(Cng)
Exper	46.92	70.45	+24	83.02	95.10	+12
Control	38.33	35.01	- 3	80.29	76.95	- 4

Conversely, the Control group's outcomes demonstrated slight reductions in both pain tolerance and threshold. No clear pattern emerged when comparing the original treatment group cold pressor change scores (see Appendix GG). Although not statistically significant, this pattern of results reflects the outcome pattern predicted by the hypotheses. No other statistically significant or near significant results occurred across the remaining (combined) dependent measure pre-post change scores (see Appendices HH, II, JJ, KK, LL, MM, and, NN).

The above two-way repeated measures ANOVAs and subsequent multiple comparison analyses performed on the combined experimental and control groups, respectively, determined that the dependent measures did not show any significant treatment effect. These overall results suggest rejection of the hypotheses. Nonparametric analyses also revealed no consistent pattern of significant results.

Supplemental analyses independent of the study hypotheses assessed differences between levels of pain threshold and pain tolerance and differences between hand A and B for all treatment groups and conditions. Appendix OO discusses these results.

Summary of the Results

The preliminary analyses revealed no statistically significant differences between the four treatment conditions for age or gender. Additionally, no other statistically significant differences across the seven dependent measure pretests resulted between the four treatment conditions. All preliminary and additional analyses only

included those subjects with initial cold pressor pain threshold and pain tolerance scores at or below 250 seconds in order to most effectively assess changes in the cold pressor measures. Results of the preliminary two-way repeated measures ANOVAs performed on the mCIS (sensory) indicated a significant difference in the pre-posttest change scores. Multiple comparison tests revealed no statistically significant difference between the pre-posttest change scores of the four respective treatment groups. Near significance, however, resulted for the No Contact Control group with a decrease in sensitivity to the mCIS (sensory) items at the posttest measure. No other statistically significant or near significant results occurred across the remaining six dependent measure pre-post change scores.

Efforts to improve the statistical representativeness of the treatment groups resulted in a combination of the treatment groups for purposes of additional analyses. Results from these additional two-way repeated measure ANOVA analyses performed on the (combined) mCIS (sensory) indicated a significant difference in the pre-post change scores. Multiple comparison tests revealed no statistically significant difference between the pre-post change scores of the respective two (combined) treatment groups. Near significance, however, occurred for the (combined) Control group with a resulting decrease in sensitivity to the mCIS (sensory) items at the posttest (combined) measure. No other statistically significant or near significant results occurred across the remaining six dependent measure pre-post change scores.

Although not statistically significant, a suggestive pattern resulted for the cold pressor measures when comparing pain threshold and pain tolerance of the (combined) Experimental and Control groups across Phases III and V. The (combined) Experimental group's outcomes demonstrated a positive increase in both threshold and pain tolerance whereas, the (combined) Control group's outcomes demonstrated slight reductions.

Chapter IV discusses these findings.

CHAPTER IV

DISCUSSION

Chapter IV begins with a discussion of the findings reported in Chapter III. Chapter IV concludes with a discussion of the variables impacting the research outcomes and suggestions for future research. As previously noted in Chapter III, this research used the traditional significance level of $p < \text{or} = .05$.

Discussion of the Results

As its primary objective, this research attempted to improve responsiveness to hypnosis suggestion by providing subjects contact with the necessary environmental history. While this study developed and utilized two experimental conditions, it also used both an integrated control group and a no contact control group as controls.

This research attempted to prove four hypotheses. The first hypothesis predicted that because both experimental treatment conditions provided the necessary environmental history, subjects in these treatment conditions would demonstrate significantly improved dependent measure change scores when compared to those of the control treatment conditions. The second hypothesis predicted that because the experimental Within Class treatment condition provided the necessary environmental history with a specific class of suggestion (motoric), subjects in this treatment condition would demonstrate significantly improved dependent measure change scores when compared

to those of both control treatment conditions for those unrehearsed suggestions of the same type suggestion class (motoric). The third hypothesis predicted that because the experimental Between Class treatment condition provided the necessary environmental history with two specific classes of suggestion (motoric and sensory), subjects in this treatment condition would demonstrate significantly improved dependent measure change scores when compared to those of the experimental Within Class treatment condition and both control treatment conditions for those unrehearsed suggestions of the non-similar suggestion class (cognitive). The fourth hypothesis predicted that because the experimental treatment conditions provided the necessary environmental history to enable generalization of the treatment effects, subjects in both experimental treatment conditions would demonstrate significantly improved analgesic dependent measure change scores when compared to those of both control treatment conditions.

The results previously reported in Chapter III suggested that the current research interventions produced no significant dependent measure change scores. The only initial significant ANOVA change score occurred for the mCIS (sensory) dependent measure. Multiple comparison tests, however, revealed no significant change score results for the four respective treatment conditions. Near significant outcomes, however, resulted for the No Contact Control group (.08). This suggests that the decrease in this group's responsiveness to the mCIS (sensory) items at the post measure resulted from less experimental contact than the other treatment conditions. Although not originally predicted by the study hypotheses, it appears

that the other control condition (i.e., Contact Control) did not demonstrate similar results because the "contact" dimension of the Contact Control treatment condition too closely resembled the experimental treatment condition(s). It appears that this similarity with the experimental treatment conditions resulted in the same positive impact occurring for the Contact Control group as did for the two experimental treatment conditions. Subjects in these three "similar" treatment conditions maintained their level of responsiveness to the mCIS (sensory) items whereas subjects in the No Contact Control treatment group demonstrated a decrease in their level of responsiveness to the mCIS (sensory) items. This pattern of results also occurred for the Control treatment condition after the combining of the respective experimental and treatment conditions into the more (population) representative single experimental and control conditions (i.e., when respectively combined to form one experimental and control condition the resulting suggestive probability level of .07 resulted for the (combined) Control treatment condition).

Additionally, although not statistically significant, a suggestive pattern occurred for the cold pressor test when comparing levels of pain threshold and pain tolerance change scores of the (combined) Experimental and Control groups across Phases III and V. Although starting at approximately the same initial levels, only the (combined) Experimental group's outcomes demonstrated a positive increase in both levels of pain threshold and pain tolerance. Conversely, the (combined) Control group's outcomes demonstrated slight reductions in both levels of pain tolerance and pain threshold. The fourth study

hypothesis predicted this pattern of results.

The results obtained for the current study require rejecting the study hypotheses. The Null hypothesis is retained for all four study hypotheses. The above results include pre-test consideration of the subject's age, gender and dependent measure scores. No statistically significant pre-test differences between groups resulted on any of the dependent measures.

Variables Impacting the Research Outcomes

As a result of its investigation of a behaviorally based program designed to modify hypnotic susceptibility levels by addressing previously unaddressed or inadequately addressed issues, the current study directly contributes to the hypnosis research of the behavioral community in several ways. First, the current research establishes both a new theoretical and application basis for future behaviorally oriented research through its design to strengthen the behavioral repertoire and response class members of the behavior evoked by the stimulus conditions of a suggestion item. Previous research efforts have not investigated modifying hypnotizability levels through this process of providing the necessary prerequisite subject history.

Second, the current study also contributes towards a new theoretical and application basis for future behaviorally oriented hypnosis research through its categorization of the test suggestions into response class categories insuring that training and assessment addressed the same categories. Previous research efforts have not

addressed this issue when attempting to modify hypnotizability levels.

Finally, the current study included a dependent measure to more fully assess the range of any treatment effects unlike the majority of its predecessors. The inclusion of a dependent measure to assess the functional relationship between changes in levels of pain threshold and pain tolerance and changes in hypnotic susceptibility directly addressed the "lack of multiple outcome measures" (Spinhoven, 1987, p. 23) cited as a weakness of most research during a recent review of hypnosis research.

Although the current study contributes to the research literature as outlined above several variables potentially impact the results obtained. Albeit none of the results statistically supported the study hypotheses, none of the results supported an alternative hypothesis. Several suggestive results supported the original hypotheses, but lacked robustness to enable complete research and statistical consideration. Improved statistical detection of change in the dependent measures might occur with a greater number of participants in each of the four treatment groups.

A second variable which potentially impacts this study stems from its analogue research basis. As a study conducted on Western Michigan University undergraduate students limitations occur as to the possible generalization of the results. Having utilized an undergraduate population limits the future application of the study results to only similar student populations. Additionally, by not using a clinically relevant population, generalization of the conclu-

sions to actual clinical populations remains inappropriate. The study population did not represent a clinical population likely to benefit from this type research. As discussed in the next section, an appropriate future application of this research would investigate a clinical population requiring an increase in pain threshold and/or pain tolerance through alternatives other than drugs and medications.

A third variable potentially impacting this study resulted from the inclusion of international students within the study sample population. Although their understanding and use of the English language appeared sufficient for inclusion an international student's verbal behavior likely differs on various dimensions when compared to that of a native English speaking person. With a secondarily developed English verbal behavioral repertoire the international student likely possesses less developed (weaker) response classes for responding to the English verbal behavior of the operator than that of a native speaker. This likely results in less intense responses of the international student subject to the verbal stimulation provided by the hypnosis procedures compared to those of a native English speaking subject. This in turn results in weaker dependent measure outcomes. These weaker or less well developed verbal behavior response classes of the international student subject likely resulted in diminishing the observed results of this study.

A fourth variable, related to the above, arises for the one international student who functioned as a research assistant involved in all aspects of the study. This included providing the verbal behavior, as the operator, to several subjects during the hypnosis

Phases. Although demonstrating verbal behavior very similar to a native speaker subtle dimensions such as cadence, accent, and inflection of this research assistant's English likely affected subjects in a different manner than the verbal behavior presented by a native speaker operator. Consequently, it is likely that this research assistant's verbal behavior diminished subject responses as compared to those subjects who received the hypnosis suggestions (i.e., operator verbal behavior) from a native speaker.

A fifth variable potentially impacting this study resulted from the length of time required to complete the study and its potential influence upon the small student campus community from which the subjects came. Student cohesiveness or awareness of study details would negatively impact the outcome of this research. As subjects did not receive specific information about the direct comparative nature of the research components, interactions between members of the different treatment groups possibly occurred and potentially influenced the observed results via discussions about the differing components of the four treatment conditions. Although provided verbal encouragement and instructions not to talk with other students about the study details, complete management of this dimension remains elusive.

The resulting integrated contact treatment program used for the Contact Control treatment condition, presents the sixth variable potentially impacting this study. Although developed for their similarity in responses class membership to the Between Class treatment items, the Contact Control treatment items attempted to remain

dissimilar enough from any actual hypnosis scale items to prevent unintended strengthening of the (similar) response classes of actual hypnosis behavior. Although the study design ensured minimal and maximal contact standards for subjects exposed to the Contact Control integrated contact treatment program, questions of whether this integrated contact treatment program provided too similar a treatment program to that of the experimental condition(s) remain.

Seventh, an additional variable potentially impacting the interpretation of the study results stems from the type of dependent measures employed in this research. Although combining the various hypnosis scales allowed subjects to come in contact with the required response class suggestion items, the length of time required for subjects to complete the 20 suggestion items resulted in a number of the subjects not recalling their contact with several of the later suggestion items. As a result, they could not fully complete the self-report dependent measures for the mCIS (sensory) and/or the mPSSOH:D (cognitive) scales. This reduced the number of individual outcome measures fully eligible for inclusion in the final statistical analyses across many of the dependent measures. This reduction in viable dependent measure outcomes negatively impacted the study results by reducing the functional size of the treatment conditions.

Although the progenitors of the mCIS (sensory) and mPSSOH:D (cognitive) self-report inventories cite various studies providing empirical support for their use as research instruments (Mitchell & Lundy, 1986; Wilson & Barber, 1978), modification of these inventories to fit the needs of the current study through the elimination of

many suggestion items likely modifies their assessment abilities. Although not completely clear, the potential negative impact on the study outcomes resulting from this modification of the original scales remains salient when reviewing the study results. In summary, the modified self-report dependent measures used in this study, although based on validated progenitor hypnosis susceptibility scales may not similarly or as accurately measure behavioral changes targeted by this research due to those modifications. As a result, these modified dependent measures may no longer measure the dimensions intended in this research.

Suggestions for Future Research

Several suggestions appear warranted from the results of this research. As no significant dependent measure changes occurred, further research to determine the relative contributions of each of this study's components appears in order. A first step would involve breaking down and verifying the categorization of the current study's hypnosis suggestions into the respective response classes: motoric, sensory, and cognitive. Treatment conditions would then provide the necessary training history as in the current study but only on the response class items of one particular treatment group (i.e., train one treatment condition for each of the respective response classes). Assessment for changes within each specific response class for each respective treatment condition could then occur. This alternative experimental design would provide a more streamlined study and eliminate the potential of subjects forgetting their contact with

suggestions. This design would also permit a more specific outcome analyses by assessing the impact of each treatment condition's training program in only one response class.

From its inception the current study made several assumptions regarding suggestion response class categorization (i.e., motoric vs sensory vs cognitive), generalization of treatment effects due to the environmental multiple control of the hypnosis behaviors (i.e., Hypothesis Two and Three), and the functional and topographical similarities and dissimilarities between the contrived motoric, sensory, and cognitive suggestion response classes (i.e., mSHSS:A, mCIS, and mPSSOH:D). The question remains for future research to assess whether different response classes require different or similar quantitative and qualitative dimensions of subject contact in order to strengthen the intended response class members. The assumptions of the current study require clarification at a more fundamental level prior to future research efforts of combining hypnosis suggestion response class members.

The strengthening (reinforcement) or weakening (punishment) of one set of response class members (e.g., motoric based behavior) does not necessarily occur at the same rate as another (e.g., cognitive based behavior). Future studies should determine whether differing response class categories of the hypnosis suggestions require differing types of qualitative or quantitative environmental contact. Although founded within theoretical and research based behavioral principles the current study made several assumptions in these areas of hypnosis as behavioral research had not been previously explored

hypnosis from this perspective. The current research intended the resulting information to provide direction for subsequent research. Future research of this nature would provide further empirical data to enhance hypnosis behaviors for viable clinical use.

As previously noted in the Historical Background of the Problem section in Chapter I, mixed outcome results occurred for previous researchers not careful to train and evaluate subject changes in hypnotizability within the same response class categories. A meta-analysis to categorize these suggestion items and evaluate those instances of same response class category training and assessment appears clearly supported by the literature review of the current research.

Although noted for its importance within the review of the literature for this study a stronger application of Skinner's analysis of verbal behavior would likely benefit future research outcomes. The current study incorporated the traditional hypnosis induction procedures which Skinner (1957), cited as "being rich in mands..." (p.366). Future research, however, could more powerfully address this verbal behavior component by designing the hypnosis procedure to more greatly concentrate the occasions of mands within the hypnosis patter. Future research could further enhance this influence on the subject by effectively managing the environmental variables so as to increase the control of the operator's verbal behavior. This process would reduce the influence/control of the subject's hypnosis behaviors by the multiple sources of control present in the environment and alternatively increase the control of the verbal behavior of the

operator. This overall process would utilize the conditioning history presented by the subjects at the onset of the study and then supplement it with the conditioning history developed within the research treatment condition(s). As noted by Skinner (1957), an autoclitic transfer from the subject to the operator occurs via the conditioning history that would develop within the research treatment condition(s). This type of future research to enhance the use of Skinner's verbal behavior analysis in conjunction with the incorporation of response class categorization and management of subject history portends strongly improved outcome results.

Future studies should also strongly consider strategies to increase the number of subject participants to promote stronger statistical analyses of the results. As noted by Cohen (1980), small sample sizes may yield weaker results when performing statistical contrasts.

Additionally, future research must consider the use of an actual clinical population whose quality of life would directly improve by the development of an effective hypnosis enhancement program (e.g., individuals requiring pain threshold or pain tolerance improvement without medication). As noted by Spinhoven (1987):

Further controlled clinical outcome research is necessary in light of the relatively small number of studies conducted to date and the methodological problems associated with these studies. Among the improvements needed... the use of patients instead of volunteers... Above all, future research should address procedures and techniques that are more representative of clinical hypnosis as it is currently practiced. The image of hypnotherapy which arises from the studies in the present review is that of hypnosis in a sloppy, ready-made behavioral suit or hypnosis as an authoritarian dismissal of symptoms (p.23).

Such clinically-based adjustments to future research would permit additional generalizations not currently possible.

When considering dependent measures for future research several key issues and suggestions arise. First, as the most recent normitization of the four core dependent measures used in the current research occurred in 1963 (HGSHS:A), 1961 (SHSS:A), 1977 (CIS), and 1986 (PSSOH:D), respectively, renormitization to assess current subject response distributions appears appropriate. These updated results would directly impact future researchers as to expected subject distributions across high, moderate, and low susceptibility levels. This would in turn impact researchers as to the anticipated initial subject pool required to secure sufficient numbers of full study participants when researching subjects of a particular susceptibility level. Results of the current research suggest that previously recorded subject distributions of levels of hypnotizability dramatically underestimate the current ratio of low and moderate hypnotizable subjects for the college undergraduate population.

Additionally, if considering the use of the same or similar integrated contact control treatment program, future research would benefit from a pilot study of the contact suggestion items to directly assess any potential impact upon the standard hypnosis behaviors (suggestions) under review. A future pilot study revealing any type of distribution of effect across the subjects of the integrated contact control treatment items would indicate that these items too closely resemble actual hypnosis scale suggestions and as such do not constitute a true contact control treatment program. If the results,

of such a pilot study on the current Contact Control treatment program, demonstrated a strong distribution of effect the current Contact Control treatment program could constitute the initial development of a new hypnosis scale. This would constitute the beginning of a new scale especially designed to assess subject susceptibility changes across specific response class suggestions. No previous hypnosis research scales address this issue.

This leads to the final recommendation for future research. The current research project demonstrates the need to develop a hypnosis scale with suggestion items better balanced across the different response classes. Most current hypnosis scales concentrate their suggestions in one response class category with few from any other categories (e.g., HGSHS:A, SHSS:A, CIS). As a result, research efforts to assess the interactions between suggestion response classes require the combining of several scales in order to assess subject responses across all response class categories. This "running together" of the susceptibility scales weakens the possible conclusions for the reasons previously described. Alternatively, if one hypnotic susceptibility scale provided a balanced distribution of suggestions from each respective response class, improved research and outcome assessments would be possible.

Appendix A
Human Subjects Institutional Review Board Approval



WESTERN MICHIGAN UNIVERSITY

Date: November 14, 1991

To: Martin Trulsen

From: Mary Anne Bunda, Chair *Mary Anne Bunda*

Re: HSIRB Project Number 91-06-14

This letter will serve as confirmation that the changes in your research protocol, "Changes in hypnotizability as a function of suggestion-based experimenter manipulations" were received and approved by the HSIRB on November 14, 1991.

xc: Spates

Appendix B

Informed Consent for Participation in an Investigation: Preliminary Assessment and Screening

Informed Consent For Participation in an Investigation:
Preliminary Assessment and Screening

I understand that I am agreeing to participate in a research study entitled, "Effects of experimenter directed experience on creative imagination and suggestion." This study will examine the effects that direct experience with suggested events has upon levels of suggestion and creative imagination.

I understand that as a participant in the preliminary assessment and screening procedures I will be asked to immerse my right and left hands in cold water (0 to 2 degrees Celsius) for as long as I can. I understand that I will not be allowed to maintain my hand in the cold water for more than five minutes. I also understand that I will be expected to participate in a session intended to measure suggestibility and complete three brief questionnaires entitled, "The Social Desirability Scale", "The Hostility Inventory" and the "Symptom Check List-90-Revised." This session should require approximately sixty minutes. I understand that if I do meet the criteria necessary for inclusion in this study that I may be asked to continue participation in this study. Any identifying information about myself (e.g., address and phone number) will be kept confidential and secured within the psychology clinic.

I understand that if I do not meet the criteria necessary for participation in this study, based upon any serious psychological concerns, I will be debriefed about the screening procedures and provided with the names of counseling resources in the University and general community as appropriate. I may then choose to explore further interactions with these resources at my own option.

I also understand that I may consent to have my name and address kept on file with Dr. Spates for potential future participation in other hypnosis research if I so desire.

I understand that if I meet all the criteria, am selected and participate for the full duration of the study, I am eligible, but not required, to receive 1.0 credit hour for my participation in this study. I understand that I will be financially responsible for paying the tuition associated with this one credit hour if I decide to register for this credit.

Participation in this study is voluntary. Although it is strongly suggested that commitment be for the entire length of the study, I will be free to discontinue participation at any time. My participation in this study will in no manner affect my relations with Western Michigan University. Minimal identifying information will be collected and only the principal researcher will have access to this information. All information will be kept confidential.

Questions or complaints regarding this research or your rights as a participant may be directed to Marlin O. Trulsen, M.A. at 344-7954. If the response is unsatisfactory, you may contact Richard Tsegaye-Spates, Ph.D., at 387-4501 or 387-4498.

My signature below indicates this statement has been explained to me, that I understand the above information and have decided to participate.

Signature of Subject

Date & Time

Signature of Investigator

Date & Time

Appendix C

Informed Consent for Participation in an Investigation: Primary Investigation Procedures

Informed Consent For Participation in an Investigation:
Primary Investigation Procedures

I understand that I am agreeing to participate in a research study entitled, "Effects of experimenter directed experience on creative imagination and suggestion." This study will examine the effects that direct experience with suggested events has upon levels of suggestion and creative imagination.

I understand that as a participant in the primary investigation procedures I will be asked to immerse my right and left hands in cold water (0 to 2 degrees Celsius) for as long as I can. I understand that I will not be allowed to maintain my hand in the cold water for more than five minutes. I also understand that I will be asked to participate in events which will enable me to directly experience the suggested events. I will then be expected to again participate in a session intended to measure suggestibility. I understand that participation in this study will require approximately five meeting sessions. Each session is not expected to exceed approximately sixty minutes. Specific time requirements may vary slightly depending upon to which study group I am assigned.

I understand that if I meet all the criteria, am selected and participate for the full duration of the study, I am eligible, but not required, to receive 1.0 credit hour for my participation in this study. I understand that I will be financially responsible for paying the tuition associated with this one credit hour if I decide to register for this credit.

Participation in this study is voluntary. Although it is strongly suggested that commitment be for the entire length of the study, I will be free to discontinue participation at any time. My participation in this study will in no manner affect my relations with Western Michigan University. Minimal identifying information will be collected and only the principal researcher will have access to this information. All information will be kept confidential.

Questions or complaints regarding this research or your rights as a participant may be directed to Marlin O. Trulsen, M.A. at 344-7954. If the response is unsatisfactory, you may contact Richard Tsegaye-Spates, Ph.D., at 387-4501 or 387-4498.

My signature below indicates this statement has been explained to me, that I understand the above information and have decided to participate.

 Signature of Subject

 Date & Time

 Signature of Investigator

 Date & Time

Appendix D

Western Michigan Scale of Directed Practice and Imagination:
Contact Control Treatment Condition Program

Initial Introduction - Contact Control Treatment Condition Program

Please make yourself comfortable in your chair and we will be begin shortly. During this session you will have the opportunity to directly experience events that are suggested to you. As in the previous sessions, nothing will be done or asked of you which will be of an embarrassing or personal nature.

During this session, you will be experiencing six different events. During each event you will have direct experience with the event. Each event will be explained before you experience it.

Prior to the first experience with each event and following each experience with an event, you will be asked to verbally report how realistic it is for you to imagine the suggestion, while having your eyes closed. The score you will give will be based on a scale from zero to ten, with zero indicating that imagining the suggestion is not very realistic for you. A ten will indicate that imagining the suggestion is very realistic for you. Please note the sample scale on the table. As you can see, a zero indicates that imagining the suggestion is not very realistic; whereas a ten indicates that imagining the suggestion is very realistic. You will be asked to give a verbal rating before experiencing the suggestion for the first time and following each experience with the suggestion. Do you have any questions? (Pause or answer any questions at this time.)

Contact Control Treatment Condition Program

CUPPING EAR (Left)

(PRE)

To begin, during the following trials you will be asked to "cup your ear with your left hand." This will mean for you to take your left hand and cup your ear as if you are trying to hear something that is very faint. Do you understand what this means? (Pause for response.) Do you have any questions? (Pause for response.) Now please close your eyes and keep them closed until I tell you to open them. Please extend your left arm straight out, with the palm of your hand down. That's it. I want you now to cup your left ear with your hand as if you were trying to hear something that is very faint. Pay close attention to this hand and what is happening to it.

(ALLOW 10 SECONDS TO PASS)

You may now return your hand to its resting position. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand cupping your ear?

(ALLOW THE SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#1)

Again please extend your left arm straight out, with the palm of your hand down. I want you now to again cup your left ear with your hand as if you were trying to hear something that is very faint. Again, pay close attention to this hand and what is happening to it.

(ALLOW 10 SECONDS TO PASS)

That's fine . . . just let your hand go to its original resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand cupping your ear?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#2)

Again please extend your left arm straight out, with the palm of your hand down. I want you now to again cup your left ear with your hand as if you were trying to hear something that is very faint. Again, pay close attention to this hand and what is happening to it.

(ALLOW 10 SECONDS TO PASS)

That's fine . . . just let your hand go to its original resting position and relax. On a scale of 0 to 10, with 0 being not very

realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand cupping your ear?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#3)

Again please extend your left arm straight out, with the palm of your hand down. I want you now to again cup your left ear with your hand as if you were trying to hear something that is very faint. Again, pay close attention to this hand and what is happening to it.

(ALLOW 10 SECONDS TO PASS)

That's fine . . . just let your hand go to its original resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand cupping your ear?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#4)

Again please extend your left arm straight out, with the palm of your hand down. I want you now to again cup your left ear with your hand as if you were trying to hear something that is very faint. Again, pay close attention to this hand and what is happening to it.

(ALLOW 10 SECONDS TO PASS)

That's fine . . . just let your hand go to its original resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand cupping your ear?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#5)

Again please extend your left arm straight out, with the palm of your hand down. I want you now to again cup your left ear with your hand as if you were trying to hear something that is very faint. Again, pay close attention to this hand and what is happening to it.

(ALLOW 10 SECONDS TO PASS)

That's fine . . . just let your hand go to its original resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand cupping your ear?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

FOLDING ARMS ACROSS EACH OTHER

(PRE)

You may now open your eyes. During the following trials you will be asked to fold your arms across each other. This will mean that you are to cross your arms across your chest when instructed to do so. Do you understand what this means? (Pause for response.) Do you have any questions? (Pause for response.)

Now please close your eyes and keep them closed until I tell you to open them. (If subject hands and arms are not currently on the arms of the chair): I would like you to please place your hands and arms on the arms of the chair. Now I want you to pay close attention to your arms and hands. Please lift your hands and arms up in the air and have them straight out in front of you. Good. Now please fold your arms across each other.

(Allow 10")

That's fine. Now just let your arms and hands go to their original resting positions and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself folding your arms across each other?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#1)

I want you to pay close attention to your arms and hands. please lift them up into the air and have them straight out in front of you. Now please fold your arms across each other.

(Allow 10")

That's fine. Now just let your arms and hands go to their original resting positions and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself folding your arms across each other?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#2)

I want you to again pay close attention to your arms and hands. Once again please lift them up into the air and have them straight out in front of you. Now please fold your arms across each other.

(Allow 10")

That's fine. Now just let your arms and hands go to their original resting positions and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how

realistic is it for you to now imagine yourself folding your arms across each other?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#3)

I want you to again pay close attention to your arms and hands. Once again please lift them up into the air and have them straight out in front of you. Now please fold your arms across each other.

(Allow 10")

That's fine. Now just let your arms and hands go to their original resting positions and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself folding your arms across each other?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#4)

I want you to again pay close attention to your arms and hands. Once again please lift them up into the air and have them straight out in front of you. Now please fold your arms across each other.

(Allow 10")

That's fine. Now just let your arms and hands go to their original resting positions and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself folding your arms across each other?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#5)

I want you to again pay close attention to your arms and hands. Once again please lift them up into the air and have them straight out in front of you. Now please fold your arms across each other.

(Allow 10")

That's fine. Now just let your arms and hands go to their original resting positions and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself folding your arms across each other?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

WRITING

(PRE)

Now let us try something else. During the following trials you will be instructed to imagine yourself writing your name. Please have your hands and arms resting comfortably on the arms of the chair you are sitting in. Using the hand you normally write with, put your fingers together like you were holding a pen and imagine that you are writing your name on a piece of paper. Imagine that you are writing your first and last name.

(Allow 10")

That's good. You noticed how easy it was to get started. To imagine yourself writing your name. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand writing your name on a piece of paper?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#1)

Now please open your eyes. During the following trials you will be able to use this pen, paper, and clipboard for the writing exercise. When you are asked to try to write with your eyes closed you will be able to do so with these items. Do not worry about the appearance of your writing. Just do the best you can. (Place items in reach of subject.) Please prepare the items in your lap. Now please close your eyes and keep them closed until I tell you to open them.

Now I want you to again pay close attention to your writing hand and fingers. Now that your fingers are together and holding the pen, notice how much more easy it is to imagine yourself writing your name. I want you to try and write your name on the paper on the clipboard.

(Allow The Subject Enough Time To Complete Name)

That's good. Please keep the pen in your hand and just relax. You noticed how easy it was to get started and to write your name. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand writing your name on a piece of paper?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#2)

Now I want you to again pay close attention to your writing hand and fingers. Now that your fingers are together and holding the pen, notice how much more easy it is to imagine yourself writing your name. I want you to again try and write your name on the paper on the clip board.

(Allow The Subject Enough Time To Complete Name)

That's good. Please keep the pen in your hand and just relax. You noticed how easy it was to get started and to write your name. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand writing your name on a piece of paper?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#3)

Now I want you to again pay close attention to your writing hand and fingers. Now that your fingers are together and holding the pen, notice how much more easy it is to imagine yourself writing your name. I want you to again try and write your name on the paper on the clip board.

(Allow The Subject Enough Time To Complete Name)

That's good. Please keep the pen in your hand and just relax. You noticed how easy it was to get started and to write your name. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand writing your name on a piece of paper?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#4)

Now I want you to again pay close attention to your writing hand and fingers. Now that your fingers are together and holding the pen, notice how much more easy it is to imagine yourself writing your name. I want you to again try and write your name on the paper on the clip board.

(Allow The Subject Enough Time To Complete Name)

That's good. Please keep the pen in your hand and just relax. You noticed how easy it was to get started and to write your name. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand writing your name on a piece of paper?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(#5)

Now I want you to again pay close attention to your writing hand and fingers. Now that your fingers are together and holding the pen, notice how much more easy it is to imagine yourself writing your name. I want you to again try and write your name on the paper on the clip board.

(Allow The Subject Enough Time To Complete Name)

That's good. Please keep the pen in your hand and just relax. You noticed how easy it was to get started and to write your name. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand writing your name on a piece of paper?

(ALLOW SUBJECT TIME TO IMAGINE AND REPORT A SCORE)

(Once item completed.) Now please open your eyes and I will take the writing items from you. (Assist subject as needed.)

SALUTE

(PRE)

Again, please close your eyes and relax. Please extend your left arm straight out, and point your fingers straight out. . . Left arm straight out, fingers together and pointing straight out. I want you to pay attention to this arm and hand. Now I would like you to bend your arm and bring your hand up to your forehead as if you were saluting someone.

(Allow 10")

That's fine, now just return your arm back to its resting position on the arm of the chair. You felt yourself saluting with your left arm and hand. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself saluting someone with your left arm and hand?

(Allow The Subject Time To Imagine And Report Score)

(#1)

Again please extend your left arm straight out, and point your fingers straight out. . . I want you to pay attention to this arm and hand. Now I would like you to bend your arm and bring your hand up to your forehead as if you were saluting someone.

(Allow 10")

That's fine, now just return your arm back to its resting position on the arm of the chair. You felt yourself saluting with your left arm and hand. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself saluting someone with your left arm and hand?

(Allow The Subject Time To Imagine And Report Score)

(#2)

Again please extend your left arm straight out, and point your fingers straight out. . . I want you to pay attention to this arm and hand. Now I would like you to bend your arm and bring your hand up to your forehead as if you were saluting someone.

(Allow 10")

That's fine, now just return your arm back to its resting position on the arm of the chair. You felt yourself saluting with your left arm and hand. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself saluting someone with your left arm and hand?

(Allow The Subject Time To Imagine And Report Score)

(#3)

Again please extend your left arm straight out, and point your fingers straight out. . . I want you to pay attention to this arm and hand. Now I would like you to bend your arm and bring your hand up to your forehead as if you were saluting someone.

(Allow 10")

That's fine, now just return your arm back to its resting position on the arm of the chair. You felt yourself saluting with your left arm and hand. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself saluting someone with your left arm and hand?

(Allow The Subject Time To Imagine And Report Score)

(#4)

Again please extend your left arm straight out, and point your fingers straight out. . . I want you to pay attention to this arm and hand. Now I would like you to bend your arm and bring your hand up to your forehead as if you were saluting someone.

(Allow 10")

That's fine, now just return your arm back to its resting position on the arm of the chair. You felt yourself saluting with your left arm and hand. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself saluting someone with your left arm and hand?

(Allow The Subject Time To Imagine And Report Score)

(#5)

Again please extend your left arm straight out, and point your fingers straight out. . . I want you to pay attention to this arm and hand. Now I would like you to bend your arm and bring your hand up to your forehead as if you were saluting someone.

(Allow 10")

That's fine, now just return your arm back to its resting position on the arm of the chair. You felt yourself saluting with your left arm and hand. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself saluting someone with your left arm and hand?

(Allow The Subject Time To Imagine And Report Score)

LIGHT - DARK VISUAL SENSATION

(PRE)

Please relax in your chair and keep your eyes closed. Please keep them closed until I tell you to open them. By using your imagination constructively you can experience the feeling of the amount of light changing around you.

First, imagine you're in the sun and it is brightly lighted around you. You are in the sun and it is a clear day and the sun is shining all around you. Now, picture yourself going into a long tunnel and the light from the sun is gone. It had been much lighter around you but now it is darker and less bright. You are in a tunnel and the sun light is no longer visible. Notice how much darker it has become.

(Allow 10")

That's fine. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine being in a dimly lighted tunnel?

(Allow Subject Time To Imagine And Report Score)

(#1)

Now again imagine you're in the sun and it is brightly lighted around you. (Turn spot light on.) You are in the sun and it is clear day and the sun is shining all around you. Now, picture yourself going into a long tunnel and the light from the sun is gone. (Turn the spot light off.) It had been much lighter around you but now it is darker and less bright. You are in a tunnel and the sun light is no longer visible. Notice how much darker it has become.

(Allow 10")

That's fine. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine being in a dimly lighted tunnel?

(Allow Subject Time To Imagine And Report Score)

(#2)

Now again imagine you're in the sun and it is brightly lighted around you. (Turn spot light on.) You are in the sun and it is clear day and the sun is shining all around you. Now, picture yourself going into a long tunnel and the light from the sun is gone. (Turn the spot light off.) It had been much lighter around you but now it is darker and less bright. You are in a tunnel and the sun light is no longer visible. Notice how much darker it has become.

(Allow 10")

That's fine. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine being in a dimly lighted tunnel?

(Allow Subject Time To Imagine And Report Score)

(#3)

Now again imagine you're in the sun and it is brightly lighted around you. (Turn spot light on.) You are in the sun and it is clear day and the sun is shining all around you. Now, picture yourself going into a long tunnel and the light from the sun is gone. (Turn the spot light off.) It had been much lighter around you but now it is darker and less bright. You are in a tunnel and the sun light is no longer visible. Notice how much darker it has become.

(Allow 10")

That's fine. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine being in a dimly lighted tunnel?

(Allow Subject Time To Imagine And Report Score)

(#4)

Now again imagine you're in the sun and it is brightly lighted around you. (Turn spot light on.) You are in the sun and it is clear day and the sun is shining all around you. Now, picture yourself going into a long tunnel and the light from the sun is gone. (Turn the spot light off.) It had been much lighter around you but now it is darker and less bright. You are in a tunnel and the sun light is no longer visible. Notice how much darker it has become.

(Allow 10")

That's fine. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine being in a dimly lighted tunnel?

(Allow Subject Time To Imagine And Report Score)

(#5)

Now again imagine you're in the sun and it is brightly lighted around you. (Turn spot light on.) You are in the sun and it is clear day and the sun is shining all around you. Now, picture yourself going into a long tunnel and the light from the sun is gone. (Turn the spot light off.) It had been much lighter around you but now it is darker and less bright. You are in a tunnel and the sun light is no longer visible. Notice how much darker it has become.

(Allow 10")

That's fine. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine being in a dimly lighted tunnel?

(Allow Subject Time To Imagine And Report Score)

SURFACE TEXTURE SENSATION

(PRE)

Please keep your eyes closed. By using your imagination creatively, you can experience the sensation of touching a rough surface without it being present.

Picture yourself picking up a rough piece of sandpaper. As you create the image of the piece of sandpaper, feel yourself gently touching it and let yourself see and feel the roughness of the surface of the sandpaper on your skin. Continue to imagine yourself gently feeling the sandpaper and let yourself feel the roughness of its surface against your skin.

(Allow 10")

That's fine. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself feeling the rough surface of sandpaper?

(Allow Subject Time To Imagine And Report Score)

(#1)

Now please open your eyes. During the following trials you may utilize this piece of sandpaper to help imagine the suggestion. (Give the piece of sandpaper to the subject.) Now please close your eyes and do not open them until I instruct you to do so.

Using the piece of sandpaper in your hand, gently feel the roughness of it. Feel yourself gently touching it and let yourself feel the roughness of the surface of the sandpaper on your skin. Continue to gently feel the sandpaper and let yourself feel the roughness of its surface against your skin.

(Allow 10")

That's fine. You may stop feeling the sandpaper but continue to hold on to it. Remain comfortable and on a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself feeling the rough surface of sandpaper?

(Allow Subject Time To Imagine And Report Score)

(#2)

Again using the piece of sandpaper in your hand, gently feel the roughness of it. Feel yourself gently touching it and let yourself feel the roughness of the surface of the sandpaper on your skin. Continue to gently feel the sandpaper and let yourself feel the roughness of its surface against your skin.

(Allow 10")

That's fine. You may stop feeling the sandpaper but continue to hold on to it. Remain comfortable and on a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself feeling the rough surface of sandpaper?

(Allow Subject Time To Imagine And Report Score)

(#3)

Again using the piece of sandpaper in your hand, gently feel the roughness of it. Feel yourself gently touching it and let yourself feel the roughness of the surface of the sandpaper on your skin. Continue to gently feel the sandpaper and let yourself feel the roughness of its surface against your skin.

(Allow 10")

That's fine. You may stop feeling the sandpaper but continue to hold on to it. Remain comfortable and on a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself feeling the rough surface of sandpaper?

(Allow Subject Time To Imagine And Report Score)

(#4)

Again using the piece of sandpaper in your hand, gently feel the roughness of it. Feel yourself gently touching it and let yourself feel the roughness of the surface of the sandpaper on your skin. Continue to gently feel the sandpaper and let yourself feel the roughness of its surface against your skin.

(Allow 10")

That's fine. You may stop feeling the sandpaper but continue to hold on to it. Remain comfortable and on a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself feeling the rough surface of sandpaper?

(Allow Subject Time To Imagine And Report Score)

(#5)

Again using the piece of sandpaper in your hand, gently feel the roughness of it. Feel yourself gently touching it and let yourself feel the roughness of the surface of the sandpaper on your skin. Continue to gently feel the sandpaper and let yourself feel the roughness of its surface against your skin.

(Allow 10")

That's fine. You may stop feeling the sandpaper but continue to hold on to it. Remain comfortable and on a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself feeling the rough surface of sandpaper?

(Allow Subject Time To Imagine And Report Score)

(When item completed): You may now open your eyes and I will take the sand paper from you. That concludes the events for this session. Thank you for your cooperation and efforts. Please remain a moment and we will schedule the next session.

Appendix E
Contact Control Treatment Measurement Form

Subject Verbal Report Of Realism Of Imagined Suggestion
(Contact Control)

Subject Name _____

Date _____

Intervention Item:
(Circle One)

Cupping Ear	Folding Arms	Writing
Salute	Light-Dark Visual Sensation	Surface Texture Sensation

Verbal Reports
(Circle Reported Number For Each Trial)

Trial

PRE:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		

One:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		

Two:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		

Three:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		

Four:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		

Five:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		

Observer's Name _____

Comments or Observations _____

Appendix F
Research Assistant Hypnosis Training Program

Training Video Tape For Stanford Hypnotic Susceptibility Scale

The purpose of this presentation is to prepare you for the scoring procedures that will be involved with the Stanford Hypnotic Susceptibility Scale. You will first be shown a demonstration of each of the suggestion responses and how to score them correctly. Following the demonstrations there will be a series of trials which you will score on your scoring form and then return to me when completed.

Please stop the tape at this point and read the Stanford Hypnotic Susceptibility Scale Booklet at this time. Once completed, resume viewing the tape.

This section is now the demonstration and training portion of the tape. Please observe the response for each item presented here as you will be asked to score several of these trials at the end of this section. Scoring for the Stanford Hypnotic Susceptibility Scale consists of giving a "+" or a "-" for successfully or unsuccessfully completing an item.

Postural Sway

The first item is the Postural Sway. You are to score a "+" if the subject "falls" without force. A "fall" is defined as the subject losing her balance and not having fallen very far. This means to score a "+" for the subject if he falls before you are signaled by the other researcher to score this item. (The researcher with the subject will raise an arm to indicate when it is time to score the Postural Sway item.) If the subject has not "fallen"/lost their balance by the time you are signaled by the researcher, then you are to score a "-" for this item.

Visual Presentation Here: present a successful and unsuccessful item.

Eye Closure

The second item is the Eye Closure. You are to score a "+" if the subject closes her eyes "without forcing." This is defined as "closing the eyes before the last paragraph of section (6)." This section may be determined by listening for the researcher with the subject to say, "That's it, now close them." The researcher will also indicate this moment by raising an arm. If the subject had closed his eyes before this statement then score a "+" for this item. If the subject closes her eyes only after being told, "That's it, now close them", then score this item as a "-".

Visual Presentation Here: present a successful and unsuccessful item.

Hand Lowering

The third item is the Hand Lowering. You are to score a "+" if the subject lowers the hand "at least six inches by the end of ten seconds." The researcher with the subject will signal when the ten seconds are up and you will then score a "+" if the hand has lowered at least six inches since the beginning of the item. If the hand has not lowered six inches then indicate a "-".

Visual Presentation Here: present a successful and unsuccessful item.

Arm Immobilization

The fourth item is the Arm Immobilization. You are to score a (+) if arm rises less than one inch in the ten second period. If the arm rises more than one inch you are to score "-" for this item. The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Finger Lock

The fifth item is the Finger Lock. You are to score a (+) if the fingers are incompletely separated at end of ten seconds. If the fingers are completely separated score a "-". The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Arm Rigidity

The sixth item is the Arm Rigidity. You are to score a (+) if there is less than two inches of arm bending in ten seconds. If the arm bends more than two inches score a "-" for this item. The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Hands Moving Together

The seventh item is the Hands Moving Together. You are to score a (+) if there is six inches or less between the hands after ten seconds. If there is more than six inches between the hands, then score a "-" for this item. The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Verbal Inhibition

The eighth item is the Verbal Inhibition. You are to score a (+) if the subject does not speak her name in ten seconds. If the subject speaks his name during the ten seconds you are to score a "-" for this item. The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Hallucination (Fly)

The ninth item is the Hallucination of the Fly. You are to score a (+) if the subject demonstrates "any grimacing, any movement, any acknowledgement of effect" of a fly being present. If the subject does not demonstrate any actions during the ten seconds you are to score a "-" for this item. The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Eye Catalepsy

The tenth item is the Eye Catalepsy. You are to score a (+) if the subject's eyes remain closed at the end of ten seconds. If the subject's eyes do not remain closed during the ten seconds you are to score a "-" for this item. The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Post-Hypnotic Changing Of Chairs

The eleventh item is the Post-Hypnotic Changing Of Chairs. You are to score a (+) if the subject makes any partial movement in response to the pencil tap. If the subject makes no movements in response to the pencil tap during the ten seconds you are to score a "-" for this item. The researcher will signal when the ten seconds are up and you are to score this item.

Visual Presentation Here: present a successful and unsuccessful item.

Scoring Sheet for the Training Video

Score each item as (+) for a successful item and as a (-) for an unsuccessful item.

- (+ = falls without forcing)

1. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = closes eyes without forcing)

2. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = lowers at least 6 inches by end of 10 seconds)

3. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = arm rises less than 1 inch in 10 seconds)

4. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = incomplete separation of fingers at end of 10 seconds)

5. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = less than 2 inches of arm bending in 10 seconds)

6. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = hands at least as close as 6 inches after 10 seconds)

7. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = name unspoken in 10 seconds)

8. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = any movement, grimacing, acknowledgment of effect)

9. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = eyes remain closed at end of 10 seconds)

10. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__
- (+ = any partial movement response)

11. a__ b__ c__ d__ e__ f__ d__ h__ i__ j__

KEY for the Scoring Sheet for the Training Video

Score each item as (+) for a successful item and as a (-) for an unsuccessful item.

1. a + b - c + d - e + f - g + h + i - j -
2. a - b - c + d - e + f + g + h - i - j +
3. a + b + c - d - e + f + g + h - i - j -
4. a - b + c - d + e + f - g + h + i - j -
5. a + b - c + d - e + f + g - h - i - j +
6. a + b - c - d + e + f + g - h - i + j +
7. a + b + c + d - e - f - g - h + i + j -
8. a - b + c - d + e - f + g + h - i + j -
9. a + b + c - d - e - f + g - h + i - j +
10. a - b + c + d - e + f - g - h + i + j -
11. a + b - c - d + e - f + g + h - i - j +

Appendix G
Phase II Cold Pressor Subject Instructions

COLD PRESSOR TEST INTRODUCTION - - PHASE II

(To be read to the subjects prior to the cold pressor testing.)

In front of you is the cold pressor apparatus. Shortly, you will be asked to immerse your hand in the cold water by putting your hand into the opening in the top of the apparatus. You are to keep your hand submerged for as long as you can.

Please indicate when pain is first felt by the hand in the water, by raising the index finger of your other hand. When you are no longer able to keep your hand in the water, remove it and you may dry it with the towel provided. If your hand remains immersed for five minutes you will be asked to remove it at that time.

After you have removed your hand from the water there will be a pause for a few minutes. Following this pause, the immersing procedure will be repeated using the opposite hand. You will be asked to immerse your hands six times; this will result in each hand being alternately immersed, three times. Please remove any watches or rings which you do not wish to have in the water.

If you have any questions please ask them at this time. (Allow time for any questions.)

Trial # 1

When I say "Begin", please place your right hand in the cold pressor apparatus and hold it there as long as you can. Raise the index finger of the other hand when the hand in the water first feels pain.

Begin.

(If the five minute limit is reached): Please remove your hand from the cold pressor apparatus and begin to prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(If the hand is pulled out before the time limit): Please prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(Start timing of 2' pause.)

Trial # 2

(After two minutes have passed): When I say begin, please place your left hand in the water for as long as you can. Again, raise the index finger on the other hand when the hand in the water first feels pain.

Begin.

(If the five minute limit is reached): Please remove your hand from the cold pressor apparatus and begin to prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(If the hand is pulled out before the time limit): Please prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(Start timing of 2' pause.)

Trial # 3

(After two minutes have passed): When I say begin, please place your right hand in the water for as long as you can. Again, raise the index finger on the other hand when the hand in the water first feels pain.

Begin.

(If the five minute limit is reached): Please remove your hand from the cold pressor apparatus and begin to prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(If the hand is pulled out before the time limit): Please prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(Start timing of 2' pause.)

Trial # 4

(After two minutes have passed): When I say begin, please place your left hand in the water for as long as you can. Again, raise the index finger on the other hand when the hand in the water first feels pain.

Begin.

(If the five minute limit is reached): Please remove your hand from the cold pressor apparatus and begin to prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(If the hand is pulled out before the time limit): Please prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(Start timing of 2' pause.)

Trial # 5

(After two minutes have passed): When I say begin, please place your right hand in the water for as long as you can. Again, raise the index finger on the other hand when the hand in the water first feels pain.

Begin.

(If the five minute limit is reached): Please remove your hand from the cold pressor apparatus and begin to prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(If the hand is pulled out before the time limit): Please prepare your other hand to be placed in the cold pressor apparatus when I instruct you to do so.

(Start timing of 2' pause.)

Trial # 6

(After two minutes have passed): When I say begin, please place your left hand in the water for as long as you can. Again, raise the index finger on the other hand when the hand in the water first feels pain.

Begin.

(If the five minute limit is reached (or) the hand is pulled out before the time limit): (Please remove your hand from the cold pressor apparatus and) . . . (or) This completes this session. Please remain for a moment longer to schedule the next session.

Appendix H
Cold Pressor Measurement Form

COLD PRESSOR MEASUREMENTS

Subject_____

Date_____

Observer's Name_____

Session: Screening Pre Assessment Post Assessment
 (Phase II) (Phase III) (Phase V) (Circle One)

Hand Immersed: Right Left (Circle One)

Trial Number: 1 2 3 4 5 6 (Circle One)

Elapsed time for pain to be reported:_____

(i.e., amount of time from when hand is first immersed to indication of pain by the movement of the index finger of the opposite hand.)

Total time hand was immersed in water:_____

(i.e., amount of time from when the hand was first immersed to when the hand was removed from the water.)

Any additional observations and/or comments:

Appendix I
Experimental Within Class Treatment Condition Program

Initial Introduction - Within Class Treatment Condition Program

Please make yourself comfortable in your chair and we will be begin shortly. During this session you will have the opportunity to directly experience events that were previously suggested to you in prior sessions. As in the previous sessions, nothing will be done or asked of you which will be of an embarrassing or personal nature.

During this session, you will be experiencing four different events. During each event you will have direct experience with the event through the use of enhancement apparatus. These apparatus will help you directly experience each suggested event. Each will be explained before you experience an event.

Prior to the first experience with each event and following each experience with an event, you will be asked to verbally report how realistic it is for you to imagine the suggestion, while having your eyes closed. The score you will give will be based on a scale from zero to ten, with zero indicating that imagining the suggestion is not very realistic for you. A ten will indicate that imagining the suggestion is very realistic for you. Please note the sample scale on the table. As you can see, a zero indicates that imagining the suggestion is not very realistic; whereas a ten indicates that imagining the suggestion is very realistic. You will be asked to give a verbal rating before experiencing the suggestion for the first time and following each experience with the suggestion. Do you have any questions? (Pause or answer any questions at this time.)

Within Class Treatment Condition Program

HAND LOWERING (Left)

(PRE)

To begin, please close your eyes and keep them closed until I tell you to open them. Please extend your left arm straight out, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. That's right, I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, as though a weight were pulling the hand and the arm down. You can picture a weight pulling on it and as it feels heavier and heavier it begins to move, as if something were forcing it down, a little bit down, more and more down and it gets heavier and heavier and goes down more and more, heavier and heavier, down more and more.

(ALLOW TEN SECONDS TO PASS)

Now just let your hand rest in its original position on the arm of the chair and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Now please open your eyes. During the following trials these weights will be added and then removed from your wrist and forearm. Now please close your eyes and keep them closed until I tell you to open them. Again, please extend your left arm straight out, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . . a little bit down . . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . . a little bit down . . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) .

. . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . a little bit down . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . a little bit down . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little

tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . . a little bit down . . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

IMMOBILIZATION (Right Arm)

(PRE)

Now please place your right hand and arm, on the arm of your chair. I want you to pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. How heavy your right hand feels and note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. Perhaps a little later you would like to see how heavy your hand is. It seems much too heavy to lift. But perhaps in spite of being so heavy you could lift it a little, although it may now be too heavy even for that. Why don't you see how heavy it is. Just try to lift your hand up, just try.

(Allow 10")

That's fine just let your hand and arm rest on the arm of the chair. You notice how you had to try and lift it against some resistance. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Now please open your eyes. During the following trials these weights will be added and then removed from your wrist and forearm. Now please close your eyes and keep them closed until I tell you to open them. Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as

you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

FINGER LOCK

(PRE)

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

(Once Hands Have Completely Separated Resume Reading Or Allow 10")

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Now please open your eyes. During the following trials these gloves will be worn on your hands. When you are asked to try to pull your hands apart, only do so until you feel the resistance of the gloves. (Place gloves in reach of subject.) Please pick up the gloves and put one glove on your hand. I will help you put the other glove on the other hand. (Assist the subject as needed.)

Now please close your eyes and keep them closed until I tell you to open them. Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax.

On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(Once item completed.) Now please open your eyes and I will assist you removing the gloves. (Assist subject as needed.)

ARM RIGIDITY

(PRE)

Again, please close your eyes and extend your left arm straight out, and make a fist. Arm straight out, a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness coming into it. It is becoming stiff. More and more stiff. Rigid like a bar of iron . . and you know how difficult . . how impossible it is to bend a bar of iron like your arm. See how much your arm is like a bar of iron. Test how stiff and rigid it is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You felt the creeping stiffness and that you had to exert a good deal of effort to bend your arm. Just place your arm back in its resting position. It is not stiff any more. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Please open your eyes. During the following trials your arm will be placed in this tube. Please extend your left arm, straight out and I will help you place your arm in the tube. (Assist the subject to place arm in tube.)

Again, now please close your eyes and do not open them until I instruct you to do so. Now with your left arm straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this

arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort

to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(When item is completed.) I will now help remove the tube from your arm.

Concluding Statement For The Within Tx Group

That concludes the events for this session. Thank you for your cooperation and efforts. Please remain a moment and we will schedule the next session.

Appendix J

Experimental Within Class / Between Class Treatment Measurement Form

Subject Verbal Report Of Realism Of Imagined Suggestion
(Within Class / Between Class)

Subject Name _____

Date _____

Intervention Item: Hand Lowering Immobilization Finger Lock Arm Rigidity
(Circle One)
 Water Hallucination Temperature Hallucination Smell/Taste Hallucination

Verbal Reports
(Circle Reported Number For Each Trial)

Trial

PRE:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		
One:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		
Two:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		
Three:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		
Four:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		
Five:	0	1	2	3	4	5	6	7	8	9	10
	Not Being Very Realistic								Being Very Realistic		

Observer's Name _____

Comments or Observations _____

Appendix K

Experimental Between Class Treatment Condition Program

Initial Introduction - Between Class Treatment Condition Program

Please make yourself comfortable in your chair and we will be begin shortly. During this session you will have the opportunity to directly experience events that were previously suggested to you in prior sessions. As in the previous sessions, nothing will be done or asked of you which will be of an embarrassing or personal nature.

During this session, you will be experiencing seven different events. During each event you will have direct experience with the event through the use of enhancement apparatus. These apparatus will help you directly experience each suggested event. Each will be explained before you experience an event.

Prior to the first experience with each event and following each experience with an event, you will be asked to verbally report how realistic it is for you to imagine the suggestion, while having your eyes closed. The score you will give will be based on a scale from zero to ten, with zero indicating that imagining the suggestion is not very realistic for you. A ten will indicate that imagining the suggestion is very realistic for you. Please note the sample scale on the table. As you can see, a zero indicates that imagining the suggestion is not very realistic; whereas a ten indicates that imagining the suggestion is very realistic. You will be asked to give a verbal rating before experiencing the suggestion for the first time and following each experience with the suggestion. Do you have any questions? (Pause or answer any questions at this time.)

Between Class Treatment Condition Program

HAND LOWERING (Left)

(PRE)

To begin, please close your eyes and keep them closed until I tell you to open them. Please extend your left arm straight out, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. That's right, I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, as though a weight were pulling the hand and the arm down. You can picture a weight pulling on it and as it feels heavier and heavier it begins to move, as if something were forcing it down, a little bit down, more and more down and it gets heavier and heavier and goes down more and more, heavier and heavier, down more and more.

(ALLOW TEN SECONDS TO PASS)

Now just let your hand rest in its original position on the arm of the chair and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Now please open your eyes. During the following trials these weights will be added and then removed from your wrist and forearm. Now please close your eyes and keep them closed until I tell you to open them. Again, please extend your left arm straight out, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . . a little bit down . . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . . a little bit down . . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) .

. . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . a little bit down . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (Remove weights.) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . a little bit down . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (Remove weights.) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now again please extend your left arm straight out again, with the palm of your hand down. That's it. I want you now to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been--you notice whether it is warm or cool, whether there is a little

tingling in it, whether there is a tendency for the fingers to twitch ever so slightly. I want you to pay close attention to this hand because something very interesting is about to happen to it. It is beginning to get heavy, heavier and heavier, as though a weight were pulling the hand and the arm down (ADD 1ST WEIGHT HERE) . . . you can picture a weight pulling on it (IF APPROPRIATE ADD 2ND WEIGHT HERE) . . . and as it feels heavier and heavier it begins to move . . . as if something were forcing it down . . . a little bit down . . . more and more down . . . heavier and heavier . . . down more and more.

(STOP ONCE THE ARM HAS LOWERED COMPLETELY OR ALLOW TEN SECONDS TO PASS IF THE ARM REMAINS HORIZONTAL)

That's fine. I will now remove the weights. (~~Remove weights.~~) Just let your hand rest in its original position on the arm of the chair, and relax. You must have noticed how heavy and tired the arm and hand felt. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand being pulled down by a weight?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

IMMOBILIZATION (Right Arm)

(PRE)

Now please place your right hand and arm, on the arm of your chair. I want you to pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. How heavy your right hand feels and note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. Perhaps a little later you would like to see how heavy your hand is. It seems much too heavy to lift. But perhaps in spite of being so heavy you could lift it a little, although it may now be too heavy even for that. Why don't you see how heavy it is. Just try to lift your hand up, just try.

(Allow 10")

That's fine just let your hand and arm rest on the arm of the chair. You notice how you had to try and lift it against some resistance. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Now please open your eyes. During the following trials these weights will be added and then removed from your wrist and forearm. Now please close your eyes and keep them closed until I tell you to open them. Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as

you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now I want you to again pay close attention to your right arm and hand. Your right arm and hand share in the feeling of heaviness. (Place 1st weight on forearm/wrist.) How heavy your right hand feels. And note how as you think about this heaviness in your hand and arm the heaviness seems to grow even more. (Place 2nd weight on the forearm.) Now your arm is getting heavy, very heavy. Now your hand is getting heavy, like lead. A little later you will see how heavy your hand is. It may seem much too heavy to lift. Why don't you see how heavy it is. Just try to lift your hand a little. Notice how heavy it is, but just try to lift it a little.

(Allow 10")

That's fine. I will now remove the weights. (Remove weights.) You notice how you had to try and lift your arm and hand against some resistance. Just let your hand and arm rest on the arm of the chair. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hand and arm being too heavy to lift?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

FINGER LOCK

(PRE)

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

(Once Hands Have Completely Separated Resume Reading Or Allow 10")

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Now please open your eyes. During the following trials these gloves will be worn on your hands. When you are asked to try to pull your hands apart, only do so until you feel the resistance of the gloves. (Place gloves in reach of subject.) Please pick up the gloves and put one glove on your hand. I will help you put the other glove on the other hand. (Assist the subject as needed.)

Now please close your eyes and keep them closed until I tell you to open them. Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax.

On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now I want you to again pay close attention to your hands and fingers. Now that your fingers are together and interlocked, press your hands tightly together. Notice how your fingers are becoming tightly interlocked together, more and more tightly interlocked together. Your fingers are interlocked, tightly interlocked and I want you to try to gently take your hands apart. Just try gently.

(Allow 10 Seconds Or Until The Subject Stops Trying.)

That's all right. You may have noticed how hard it was to get started. Now return your hands to their resting position and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your hands and fingers being interlocked together and unable to come apart?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(Once item completed.) Now please open your eyes and I will assist you removing the gloves. (Assist subject as needed.)

ARM RIGIDITY

(PRE)

Again, please close your eyes and extend your left arm straight out, and make a fist. Arm straight out, a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness coming into it. It is becoming stiff. More and more stiff. Rigid like a bar of iron . . and you know how difficult . . how impossible it is to bend a bar of iron like your arm. See how much your arm is like a bar of iron. Test how stiff and rigid it is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You felt the creeping stiffness and that you had to exert a good deal of effort to bend your arm. Just place your arm back in its resting position. It is not stiff any more. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#1)

Please open your eyes. During the following trials your arm will be placed in this tube. Please extend your left arm, straight out and I will help you place your arm in the tube. (Assist the subject to place arm in tube.)

Again, now please close your eyes and do not open them until I instruct you to do so. Now with your left arm straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#2)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this

arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#3)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#4)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort

to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(#5)

Now with your left arm again straight out, make a fist. Arm straight out, make a tight fist. I want you to pay attention to this arm and imagine that it is becoming stiff . . . very stiff and now you notice that something is happening to your arm. You notice a feeling of stiffness. It is becoming stiff and more rigid, like a bar of iron, and you know how difficult and impossible it is to bend a bar of iron like your arm. Test how stiff and rigid your arm is. Try to bend it. Try.

(Resume Reading Once The Arm Bends Or Allow 10")

That's fine. You may rest your arm now and relax. You felt the stiffness of your arm and that you had to exert a good deal of effort to try to bend your arm. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your arm being too rigid to bend?

(ALLOW SUBJECT TIME TO IMAGINE AND THEN RESPOND: 10 - 20 SECONDS)

(When item is completed.) I will now help remove the tube from your arm.

WATER HALLUCINATION

(PRE)

Please relax in your chair and close your eyes. Please keep them closed until I tell you to open them. By using your imagination constructively you can experience the feeling of drinking cool, refreshing water.

First, imagine you've been out in the hot sun for hours and you're very, very thirsty and your lips are dry and you're so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. As you think of sipping the water tell yourself its absolutely delicious as you feel it going down your throat. Cold, beautiful and delicious. Feel the coolness and beauty of the water as you take a sip. Now, think of taking another sip of water and feel it going over your lips and tongue, going down your throat, and down into your stomach. Feel how cool, refreshing, delicious and beautiful it is as you take another sip of the cool water. So beautiful and cool and wonderful. Absolutely delicious."

Remain comfortable in the chair and on a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself drinking cool mountain water?

(#1)

Please open your eyes. I have placed a clean cup of water in front of you. I would like you to take the cup and hold on to it during the following trials. During these trials you will be asked to drink from the cup. As you can see it is not very full so it will be unlikely for you to spill any. Once you have taken a drink please return your hand to its resting position while continuing to hold on to the cup with your hand. Now please close your eyes and keep them closed until I tell you to open them.

Again, imagine you've been out in the hot sun for hours and you're very, very thirsty and your lips are dry and you're so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. Now take a sip of water from your cup. As you sip the water notice it going down your throat . . . cold and delicious. Feel the coolness of the water as you take another sip.

(Allow time for the sip to be completed.)

That's fine. Remain comfortable in the chair and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself drinking cool mountain water?

(#2)

Again, imagine you've been out in the hot sun for hours and you're very, very thirsty and your lips are dry and you're so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. Now take a sip of water from your cup. As you sip the water notice it going down your throat . . . cold and delicious. Feel the coolness of the water as you take another sip.

(Allow time for the sip to be completed.)

That's fine. Remain comfortable in the chair and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself drinking cool mountain water?

(#3)

Again, imagine you've been out in the hot sun for hours and you're very, very thirsty and your lips are dry and you're so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. Now take a sip of water from your cup. As you sip the water notice it going down your throat . . . cold and delicious. Feel the coolness of the water as you take another sip.

(Allow time for the sip to be completed.)

That's fine. Remain comfortable in the chair and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself drinking cool mountain water?

(#4)

Again, imagine you've been out in the hot sun for hours and you're very, very thirsty and your lips are dry and you're so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. Now take a sip of water from your cup. As you sip the water notice it going down your throat . . . cold and delicious. Feel the coolness of the water as you take another sip.

(Allow time for the sip to be completed.)

That's fine. Remain comfortable in the chair and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself drinking cool mountain water?

(#5)

Again, imagine you've been out in the hot sun for hours and you're very, very thirsty and your lips are dry and you're so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. Now take a sip of water from your cup. As you sip the water notice it going down your throat . . . cold and delicious. Feel the coolness of the water as you take another sip.

(Allow time for the sip to be completed.)

That's fine. Remain comfortable in the chair and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself drinking cool mountain water?

(When item is completed): I will now take the cup from your hand. You do not need to open your eyes. Just relax and I will take the cup from you.

TEMPERATURE "HALLUCINATION"

(PRE)

Keep your eyes closed and place your hands in your lap with the palms facing down and resting comfortably on your lap. By focusing your thinking you can make your right hand feel hot.

(Begin timing.) Picture the sun shining on your right hand and let yourself feel the heat. As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting hotter and feel the heat penetrating your skin and going deep into your hand. Think of it getting really hot now, getting very hot. Feel the heat increasing. Think of the sun getting very, very hot as it penetrates into your hand, getting very hot. Tell yourself, "The rays are increasing, the heat is increasing, getting hotter and hotter." Feel the heat penetrating through your skin. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming more and more concentrated, getting hotter and hotter. Feel your hand getting hot from the heat of the sun. It's a good feeling of heat as it penetrates deep into your hand, hot, pleasantly hot, penetrating your hand now. It's a pleasantly hot feeling, pleasantly hot.

(End of timing: about 1'15".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your right hand feeling hot or warm?

(#1)

Now please open your eyes. During the following trials the light on the table will be used to provide heat for your right hand. It will be a gentle, warm heat. Please place your hand on the mark by the lamp. Do you have any questions?

Please close your eyes and keep them closed until I instruct you to open them.

Again picture the sun shining on your right hand and let yourself feel the heat. (Turn the lamp on.) As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting warmer and feel the heat penetrating your skin and going deep into your hand. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming warmer. Feel your hand getting warm from the heat of the sun. It's a good feeling of heat. (Turn the lamp off.) Your hand has had a pleasantly warm feeling from the gentle heat and is now cooling and returning to normal.

(End of timing: about 1'15".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how

realistic is it for you to now imagine your right hand feeling hot or warm?

(#2)

Again picture the sun shining on your right hand and let yourself feel the heat. (Turn the lamp on.) As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting warmer and feel the heat penetrating your skin and going deep into your hand. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming warmer. Feel your hand getting warm from the heat of the sun. It's a good feeling of heat. (Turn the lamp off.) Your hand has had a pleasantly warm feeling from the gentle heat and is now cooling and returning to normal.

(End of timing: about 1'15".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your right hand feeling hot or warm?

(#3)

Again picture the sun shining on your right hand and let yourself feel the heat. (Turn the lamp on.) As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting warmer and feel the heat penetrating your skin and going deep into your hand. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming warmer. Feel your hand getting warm from the heat of the sun. It's a good feeling of heat. (Turn the lamp off.) Your hand has had a pleasantly warm feeling from the gentle heat and is now cooling and returning to normal.

(End of timing: about 1'15".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your right hand feeling hot or warm?

(#4)

Again picture the sun shining on your right hand and let yourself feel the heat. (Turn the lamp on.) As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting warmer and feel the heat penetrating your skin and going deep into your hand. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming warmer. Feel your hand getting warm from the heat of the sun. It's a good feeling of heat. (Turn the lamp off.) Your hand has had a pleasantly warm feeling from the gentle heat and is now cooling and returning to normal.

(End of timing: about 1'15".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your right hand feeling hot or warm?

(#5)

Again picture the sun shining on your right hand and let yourself feel the heat. (~~Turn the lamp on.~~) As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting warmer and feel the heat penetrating your skin and going deep into your hand. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming warmer. Feel your hand getting warm from the heat of the sun. It's a good feeling of heat. (~~Turn the lamp off.~~) Your hand has had a pleasantly warm feeling from the gentle heat and is now cooling and returning to normal.

(End of timing: about 1'15".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine your right hand feeling hot or warm?

Now please return your hand to the arm of the chair and relax.

OLFACTORY-GUSTATORY "HALLUCINATION"

(PRE)

Keep your eyes closed. By using your imagination creatively, you can experience the smell and taste of an orange.

(Begin timing.) Picture yourself picking up an orange and imagine that you're peeling it. As you create the image of the orange, feel yourself peeling it and let yourself see and feel the orange skin on the outside and the soft white pulp on the inside of the skin. As you continue peeling the orange, notice how beautiful and luscious it is and let yourself smell it and touch it and feel the juiciness of it. Now think of pulling out one or two of the orange sections with your fingers. Pull out part of the orange and bite into it. Experience how juicy, luscious and flavorful it is as you imagine taking a deep, deep bite. Let yourself smell and taste the orange and notice that it's absolutely delicious. Let yourself feel how delicious, beautiful, and luscious it is. Just the most beautiful, juicy orange . . . absolutely juicy and wonderful. Let yourself taste and smell the juicy orange clearly now as you think of taking another large bite of the delicious, juicy orange.

(End of timing: about 1'30".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself smelling and tasting an orange?

(#1)

Now please open your eyes. (While giving subject orange pieces bag.) In this bag are clean sections of an orange. During the following trials you will be instructed to smell and taste sections of this orange. You will use these sections when the instructions tell you to take an orange section from your hand. Do you have any questions?

Now again, relax in your chair, close your eyes and keep them closed until I instruct you to open them. Again picture yourself picking up an orange and imagine that you're peeling it. Picture yourself peeling it and let yourself see and feel the orange. As you continue picturing yourself peeling the orange, notice how luscious it is. Picture yourself smelling the orange.

Now, take an orange section from the bag that is in your hand and smell the orange. (Allow 10" for subject to smell orange.) Touch and feel the orange section. Now take the orange section and bite into it. Experience how juicy and flavorful it is as you take a bite. Let yourself smell and taste the orange.

(Wait Until Subject Finishes Chewing Orange Section. Timing: about 1'30".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how

realistic is it for you to now imagine yourself smelling and tasting an orange?

(#2)

Again picture yourself picking up an orange and imagine that you're peeling it. Picture yourself peeling it and let yourself see and feel the orange. As you continue picturing yourself peeling the orange, notice how luscious it is. Picture yourself smelling the orange.

Now, take an orange section from the bag that is in your hand and smell the orange. (Allow 10" for subject to smell orange.) Touch and feel the orange section. Now take the orange section and bite into it. Experience how juicy and flavorful it is as you take a bite. Let yourself smell and taste the orange.

(Wait Until Subject Finishes Chewing Orange Section. Timing: about 1'30".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself smelling and tasting an orange?

(#3)

Again picture yourself picking up an orange and imagine that you're peeling it. Picture yourself peeling it and let yourself see and feel the orange. As you continue picturing yourself peeling the orange, notice how luscious it is. Picture yourself smelling the orange.

Now, take an orange section from the bag that is in your hand and smell the orange. (Allow 10" for subject to smell orange.) Touch and feel the orange section. Now take the orange section and bite into it. Experience how juicy and flavorful it is as you take a bite. Let yourself smell and taste the orange.

(Wait Until Subject Finishes Chewing Orange Section. Timing: about 1'30".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself smelling and tasting an orange?

(#4)

Again picture yourself picking up an orange and imagine that you're peeling it. Picture yourself peeling it and let yourself see and feel the orange. As you continue picturing yourself peeling the orange, notice how luscious it is. Picture yourself smelling the orange.

Now, take an orange section from the bag that is in your hand and smell the orange. (Allow 10" for subject to smell orange.) Touch and feel the orange section. Now take the orange section and bite into it. Experience how juicy and flavorful it is as you take a bite. Let yourself smell and

taste the orange.

(Wait Until Subject Finishes Chewing Orange Section. Timing: about 1'30".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself smelling and tasting an orange?

(#5)

Again picture yourself picking up an orange and imagine that you're peeling it. Picture yourself peeling it and let yourself see and feel the orange. As you continue picturing yourself peeling the orange, notice how luscious it is. Picture yourself smelling the orange.

Now, take an orange section from the bag that is in your hand and smell the orange. (Allow 10" for subject to smell orange.) Touch and feel the orange section. Now take the orange section and bite into it. Experience how juicy and flavorful it is as you take a bite. Let yourself smell and taste the orange.

(Wait Until Subject Finishes Chewing Orange Section. Timing: about 1'30".)

Remain comfortable and relax. On a scale of 0 to 10, with 0 being not very realistic and 10 being very realistic, at this moment, how realistic is it for you to now imagine yourself smelling and tasting an orange?

(When item completed): You may now open your eyes and hold the bag out in front of you and I will take it from you. This concludes the events for this session. Thank you for your cooperation and efforts. Please remain a moment and we will schedule the next session.

Appendix L

**Nonsignificant Pre-test Harvard Group Scale of Hypnotic Susceptibility,
Form A Scores**

Nonsignificant Pre ANOVA Harvard Group Scale of Hypnotic Susceptibility, Form A Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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HGSHS:A	Between Groups	3	14.57	4.85	1.04	.39
	Within Groups	22	101.88	4.63		
	Total	25	116.46			

Appendix M
Nonsignificant Pre-test Stanford Hypnotic Susceptibility Scale,
Form A Scores

Nonsignificant Pre ANOVA Stanford Hypnotic Susceptibility Scale, Form A Scores

<u>N</u> = 26						
<hr/>						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<hr/>						
SHSS:A	Between Groups	3	16.49	5.49	.92	.44
	Within Groups	22	131.13	5.96		
	Total	25	147.62			

Appendix N

Nonsignificant Pre-test Modified Stanford Hypnotic Susceptibility Scale, Form A Scores

Nonsignificant Pre ANOVA modified Stanford Hypnotic Susceptibility Scale, Form A Scores

<u>N</u> = 26						
<hr/>						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<hr/>						
mSHSS:A (motoric)	Between Groups	3	14.57	4.85	1.28	.30
	Within Groups	22	83.02	3.77		
	Total	25	97.59			

Appendix O

Nonsignificant Pre-test Modified Creative Imagination Scale Scores

Nonsignificant Pre ANOVA modified Creative Imagination Scale Scores

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
mCIS (sensory)	Between Groups	3	36.37	12.12	.35	.78
	Within Groups	22	753.78	34.26		
	Total	25	790.15			

Appendix P

**Nonsignificant Pre-test Modified Penn State Scale of Hypnotizability,
Form D Scores**

Nonsignificant Pre ANOVA modified Penn State Scale of Hypnotizability,
Form D Scores

<u>N</u> = 22						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
mPSSOH:D (cognitive)	Between Groups	3	7.78	2.59	.61	.61
	Within Groups	18	76.02	4.22		
	Total	21	83.80			

Appendix Q

Nonsignificant Pre-test Total Hypnosis Suggestion Scale Scores

Nonsignificant Pre ANOVA Total Hypnosis Suggestion Scale Scores

<u>N = 22</u>						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
THSS	Between Groups	3	148.22	49.40	.63	.60
	Within Groups	18	1394.54	77.47		
	Total	21	1542.77			

Appendix R

Nonsignificant Pre-test Level of Pain Threshold
Cold Pressor Test Scores

Nonsignificant Pre ANOVA Level of Pain Threshold Cold Pressor
Test Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain Threshold	Between Groups	3	4266.14	1422.04	.87	.47
	Within Groups	22	35942.78	1633.76		
	Total	25	40208.92			

Appendix S

Nonsignificant Pre-test Level of Pain Tolerance Cold Pressor Test Scores

Nonsignificant Pre ANOVA Level of Pain Tolerance Cold Pressor
Test Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain Tolerance	Between Groups	3	1504.34	501.44	.10	.95
	Within Groups	22	106971.70	4862.35		
	Total	25	108476.04			

Appendix T
Nonsignificant Pre-test of Subject Gender Differences

Nonsignificant Pre ANOVA Gender Scores

<u>N</u> = 35						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Gender	Between Groups	3	.98	.32	1.32	.28
	Within Groups	31	7.70	.24		
	Total	34	8.68			

Appendix U
Nonsignificant Pre-test of Subject Age Differences

Nonsignificant Pre ANOVA Age Scores

<u>N</u> = 35						
<hr/>						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<hr/>						
Age	Between Groups	3	30.93	10.31	.70	.55
	Within Groups	31	456.03	14.71		
	Total	34	486.97			

Appendix V
Nonsignificant Multiple Comparison Modified Creative Imagination Scale
Tests

Non-significant results of multiple comparison test for the significant Two-way Repeated Measures ANOVA modified Creative Imagination Scale scores ($p < .05$).

Pre-Post Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
1.31	Within	2.81	1.29	1.13
-.50	Between	3.04	.27	.52
1.07	Contact C	3.09	.71	.84
3.66	No Contact C	4.37	7.12	2.67

(*) Denotes pairs of groups significantly different at the .05 level.

Appendix W

Non-significant One Factor Pre-Post Repeated Measures ANOVA No Contact
Control Group Modified Creative Imagination Scale Scores

Non-significant One Factor Pre-Post Repeated Measures ANOVA No Contact
Control Group Modified Creative Imagination Scale Scores

<u>N</u> = 4						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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NCC mCIS (sensory)	Between subjects	3	59.99	19.99	2.09	.24
	Within subjects	4	38.22	9.55		
	treatments	1	26.90	26.90	7.12	.08
	residual	3	11.32	3.77		
	Total	7	98.21			

Appendix X

Non-significant Two-way Repeated Measures ANOVA Harvard Group Scale of
Hypnotic Susceptibility, Form A
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Harvard Group Scale of Hypnotic Susceptibility, Form A Pre-Post Change Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
HGSHS:A	Experimental Groups	3	12.21	4.07	.55	.65
	Subjects Within Grps	22	162.11	7.36		
	Repeated Measure (B)	1	.48	.48	.19	.66
	B x Subjects W. Grps	22	55.46	2.52		

Appendix Y

Non-significant Two-way Repeated Measures ANOVA Stanford Hypnotic
Susceptibility Scale, Form A
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Stanford Hypnotic
Susceptibility Scale, Form A Pre-Post Change Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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SHSS:A	Experimental Groups	3	29.58	9.86	.84	.48
	Subjects Within Grps	22	257.35	11.69		
	Repeated Measure (B)	1	.01	.01	.01	.91
	B x Subjects W. Grps	22	28.90	1.31		

Appendix Z

Non-significant Two-way Repeated Measures ANOVA Modified Stanford
Hypnotic Susceptibility Scale, Form A
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA modified Stanford
Hypnotic Susceptibility Scale, Form A Pre-Post Change Scores

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
mSHSS:A (motoric)	Experimental Groups	3	22.01	7.33	1.03	.39
	Subjects Within Grps	22	156.65	7.12		
	Repeated Measure (B)	1	.00	.00	.00	.96
	B x Subjects W. Grps	22	21.64	.98		

Appendix AA

Non-significant Two-way Repeated Measures ANOVA Modified Penn State
Scale of Hypnotizability, Form D
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA modified Penn State
Scale of Hypnotizability, Form D Pre-Post Change Scores

<u>N</u> = 17						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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mPSSOH:D (cognitive)	Experimental Groups	3	30.02	10.08	2.21	.13
	Subjects Within Grps	13	58.72	4.51		
	Repeated Measure (B)	1	1.44	1.44	1.09	.31
	B x Subjects W. Grps	13	17.17	1.32		

Appendix BB

**Non-significant Two-way Repeated Measures ANOVA
Total Hypnosis Suggestion Scale
Pre-Post Change Scores**

Non-significant Two-way Repeated Measures ANOVA Total Hypnosis
Suggestion Scale Pre-Post Change Scores

N = 16

Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
THSS	Experimental Groups	3	389.65	129.88	.92	.45
	Subjects Within Grps	12	1690.35	140.86		
	Repeated Measure (B)	1	10.12	10.12	1.36	.26
	B x Subjects W. Grps	12	88.75	7.39		

Appendix CC

Non-significant Two-way Repeated Measures ANOVA
Cold Pressor Level of Pain Threshold
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Level of Pain Threshold
Cold Pressor Pre-Post Change Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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Pain Threshold	Experimental Groups	3	37679.44	12559.81	3.57	.03
	Subjects Within Grps	22	77393.39	3517.88		
	Repeated Measure (B)	1	1326.02	1326.02	1.34	.25
	B x Subjects W. Grps	22	21627.13	983.05		

Appendix DD

Non-significant Two-way Repeated Measures ANOVA
Cold Pressor Level of Pain Tolerance
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Level of Pain Tolerance
Cold Pressor Pre-Post Change Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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Pain Tolerance	Experimental Groups	3	32590.77	10863.59	1.15	.34
	Subjects Within Grps	22	207144.82	9415.67		
	Repeated Measure (B)	1	247.71	247.71	.24	.62
	B x Subjects W. Grps	22	22196.53	1008.93		

Appendix EE

Non-significant Multiple Comparison Combined Modified Creative Imagination Scale Test Results

Non-significant Results of Multiple Comparison Test for the Significant Two-way Repeated Measures ANOVA Combined modified Creative Imagination Scale Scores ($p < .05$).

Pre-Post Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett <u>t</u>
.65	Experimental	1.84	.62	.78
2.01	Control	2.19	4.17	2.04

(*) Denotes pairs of groups significantly different at the .05 level.

Appendix FF

Non-significant One Factor Pre-Post Repeated Measures ANOVA
Control Group Combined Modified Creative Imagination
Scale Scores

Non-significant One Factor Pre-Post Repeated Measures ANOVA Control
Group Combined Modified Creative Imagination Scale Scores

<u>N</u> = 11						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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Combined	Between subjects	10	458.38	45.83	6.64	.00
Control	Within subjects	11	75.84	6.89		
mCIS	treatments	1	22.34	22.34	4.17	.07
(sensory)	residual	10	53.50	5.35		
	Total	21	534.23			

Appendix GG

Levels of Pain Threshold and Pain Tolerance Change Scores

Levels of Pain Threshold and Pain Tolerance Change Scores

<div>N = 26</div> <div>Time in Seconds</div>						
Group	Threshold Time			Tolerance Time		
	<u>Phase III</u>	<u>Phase V</u>	(Cng)	<u>Phase III</u>	<u>Phase V</u>	(Cng)
Within	66.94	113.25	+46	105.06	137.08	+32
Between	23.57	20.51	- 3	57.31	46.13	-11
Contact C	44.09	41.04	- 3	80.46	73.71	- 6
No Contact C	29.12	25.35	- 3	80.02	82.12	+ 2

Appendix HH

**Non-significant Two-way Repeated Measures ANOVA Combined Harvard Group
Scale of Hypnotic Susceptibility, Form A
Pre-Post Change Scores**

Non-significant Two-way Repeated Measures ANOVA Combined Harvard Group
Scale of Hypnotic Susceptibility, Form A Pre-Post Change Scores

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined HGSHS:A	Experimental Groups	1	1.55	1.55	.21	.64
	Subjects Within Grps	24	172.76	7.19		
	Repeated Measure (B)	1	.48	.48	.19	.66
	B x Subjects W. Grps	24	59.07	2.46		

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Appendix II

Non-significant Two-way Repeated Measures ANOVA Combined
Stanford Hypnotic Susceptibility Scale, Form A
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Combined Stanford
Hypnotic Susceptibility Scale, Form A Pre-Post Change Scores

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined SHSS:A	Experimental Groups	1	.36	.36	.03	.86
	Subjects Within Grps	24	286.57	11.94		
	Repeated Measure (B)	1	.01	.01	.01	.91
	B x Subjects W. Grps	24	32.13	1.33		

Appendix JJ

Non-significant Two-way Repeated Measures ANOVA Combined Modified
Stanford Hypnotic Susceptibility Scale, Form A
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Combined modified
Stanford Hypnotic Susceptibility Scale, Form A Pre-Post Change Scores

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Modified mSHSS:A (motoric)	Experimental Groups	1	.137	.137	.01	.89
	Subjects Within Grps	24	178.53	7.43		
	Repeated Measure (B)	1	.00	.00	.00	.96
	B x Subjects W. Grps	24	23.30	.97		

Appendix KK

**Non-significant Two-way Repeated Measures ANOVA Combined
Modified Penn State Scale of Hypnotizability, Form D
Pre-Post Change Scores**

Non-significant Two-way Repeated Measures ANOVA Combined Modified Penn
State Scale of Hypnotizability, Form D Pre-Post Change Scores

<u>N</u> = 17						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined mPSSOH:D (cognitive)	Experimental Groups	1	6.83	6.83	1.25	.28
	Subjects Within Grps	15	81.92	5.46		
	Repeated Measure (B)	1	1.44	1.44	1.20	.29
	B x Subjects W. Grps	15	17.97	1.19		

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Appendix LL

Non-significant Two-way Repeated Measures ANOVA
Combined Total Hypnosis Suggestion Scale
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Combined Total Hypnosis
Suggestion Scale Pre-Post Change Scores

<u>N</u> = 16						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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Combined THSS	Experimental Groups	1	89.17	89.17	.62	.44
	Subjects Within Grps	14	1990.82	142.20		
	Repeated Measure (B)	1	10.12	10.12	1.27	.27
	B x Subjects W. Grps	14	111.49	7.96		

Appendix MM

Non-significant Two-way Repeated Measures ANOVA
Combined Cold Pressor Level of Pain Threshold
Pre-Post Change Scores

Non-significant Two-way Repeated Measures ANOVA Combined Level of Pain
Threshold Cold Pressor Pre-Post Change Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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Combined Pain Threshold	Experimental Groups	1	6301.24	6301.24	1.39	.24
	Subjects Within Grps	24	108771.6	4532.15		
	Repeated Measure (B)	1	1326.02	1326.02	1.24	.27
	B x Subjects W. Grps	24	25564.59	1065.19		

Appendix NN

**Non-significant Two-way Repeated Measures ANOVA
Combined Cold Pressor Level of Pain Tolerance
Pre-Post Change Scores**

Non-significant Two-way Repeated Measures ANOVA Combined Level of Pain
Tolerance Cold Pressor Pre-Post Change Scores

<u>N</u> = 26						
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Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
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Combined Pain Tolerance	Experimental Groups	1	1417.28	1417.28	.14	.70
	Subjects Within Grps	24	238318.32	9929.93		
	Repeated Measure (B)	1	247.71	247.71	.23	.63
	B x Subjects W. Grps	24	25332.04	1055.50		

Appendix 00

Results of Supplemental Analyses Assessing Differences Between Levels of Pain Threshold and Pain Tolerance and Differences Between Hand A and Hand B

Results of Supplemental Analyses Assessing Differences Between
Levels of Pain Threshold and Pain Tolerance and
Differences Between Hand A and Hand B

Results from a two-way repeated measures ANOVA performed on the cold pressor test indicated a significant difference in scores between pain threshold and pain tolerance across all Phases: (1) Phase II pain threshold and pain tolerance $F(1, 22) = 31.79, p < .000$; (2) Phase III pain threshold and pain tolerance $F(1, 22) = 29.75, p < .000$; and (3) Phase V pain threshold and pain tolerance $F(1, 22) = 12.91, p < .001$. See Tables 1, 2, and 3, respectively. Both the Fisher PLSD and Scheffe

Table 1

Significant Two-way Repeated Measures ANOVA Cold Pressor Level of
Pain Threshold vs Level of Pain Tolerance Phase II Results

<u>N = 26</u>						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain Threshold vs Pain Tolerance Phase II	Experimental Groups	3	3680.91	1226.97	.23	.87
	Subjects Within Grps	22	116387.00	5290.31		
	Repeated Measure (B)	1	38335.52	38335.52		
	B x Subjects W. Grps	22	26527.49	1205.79		

F-test multiple comparison tests revealed statistically significant differences between the pain threshold and pain tolerance scores across all treatment groups during Phase II (see Table 4); for all treatment groups except the No Contact Control group during Phase III (see Table 5); and for the Between Class and Contact Control groups during Phase

V (see Table 6). Multiple comparison tests revealed non-significant results between the pain threshold and pain tolerance scores for the Contact Control group during Phases III and V, and for the Within Class group during Phase V (see Tables 5 and 6, respectively). These scores

Table 2

Significant Two-way Repeated Measures ANOVA Cold Pressor Level of Pain Threshold vs Level of Pain Tolerance Phase III Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain	Experimental Groups	3	14196.30	4732.10	1.00	.40
Threshold	Subjects Within Grps	22	103161.27	4689.14		
vs	Repeated Measure (B)	1	19802.45	19802.45	29.75	.000
Pain	B x Subjects W. Grps	22	14641.19	665.50		
Tolerance						
Phase III						

Table 3

Significant Two-way Repeated Measures ANOVA Cold Pressor Level of Pain Threshold vs Level of Pain Tolerance Phase V Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain	Experimental Groups	3	63925.39	21308.46	2.52	.08
Threshold	Subjects Within Grps	22	186004.74	8454.76		
vs	Repeated Measure (B)	1	14410.90	14410.90	12.91	.001
Pain	B x Subjects W. Grps	22	24554.67	1116.12		
Tolerance						
Phase V						

Table 4

Significant Results of the Multiple Comparison Tests on the Significant Two-way Repeated Measures ANOVA Cold Pressor Level of Pain Threshold vs Level of Pain Tolerance Phase II Results ($p < .05$).

Phase II Pain Threshold vs Pain Tolerance				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett \bar{t}
-38.13	Within	16.89*	30.52*	5.52
-48.55	Between	38.19*	10.67*	3.26
-70.42	Contact C	59.94*	7.71*	2.77
-58.05	No Contact C	57.07*	7.97*	2.82

(*) Denotes pairs of groups significantly different at the .05 level.

Table 5

Significant Results of the Multiple Comparison Tests on the Significant Two-way Repeated Measures ANOVA Cold Pressor Level of Pain Threshold vs Level of Pain Tolerance Phase III Results ($p < .05$).

Phase III Pain Threshold vs Pain Tolerance				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett \bar{t}
-38.11	Within	25.51*	13.36*	3.65
-33.74	Between	32.45*	7.14*	2.67
-36.37	Contact C	30.79*	7.80*	2.79
-50.89	No Contact C	63.44	4.96	2.22

(*) Denotes pairs of groups significantly different at the .05 level.

reflect the subject's levels of pain threshold and pain tolerance as measured by the elapsed and total time following immersion of the

Table 6

Significant Results of the Multiple Comparison Tests on the Significant Two-way Repeated Measures ANOVA Cold Pressor Level of Pain Threshold vs Level of Pain Tolerance Phase V Results ($p < .05$).

Phase V Pain Threshold vs Pain Tolerance				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
-23.82	Within	33.03	3.11	1.76
-25.61	Between	23.69*	7.72*	2.78
-32.66	Contact C	27.71*	7.76*	2.78
-56.77	No Contact C	109.70	2.06	1.43

(*) Denotes pairs of groups significantly different at the .05 level.

subject's hand into cold water, respectively. These results suggest the consistent presence of a significant difference between the level of pain threshold and level of pain tolerance for the Between Class and Contact Control groups and a decreasing difference for the Within Class and No Contact Control groups.

Results from a two-way repeated measures ANOVA performed on the (combined) cold pressor test indicated a significant difference in scores between pain threshold and pain tolerance across all Phases: (1) Phase II pain threshold and pain tolerance $F(1, 24) = 34.15$, $p < .000$; (2) Phase III pain threshold and pain tolerance $F(1, 24) = 31.69$, $p < .000$; and (3) Phase V pain threshold and pain tolerance $F(1, 24) = 13.58$, $p < .001$ (see Tables 7, 8, and 9, respectively). Both the Fisher PLSD and Scheffe F-test multiple comparison tests revealed statistically significant differences between the pain threshold and

Table 7

Significant Two-way Repeated Measures ANOVA Combined Cold Pressor
Level of Pain Threshold vs Level of Pain Tolerance
Phase II Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Threshold vs Pain Tolerance Phase II	Experimental Groups	1	1120.88	1120.88	.22	.63
	Subjects Within Grps	24	118947.03	4956.12		
	Repeated Measure (B)	1	38335.52	38335.52	31.15	.000
	B x Subjects W. Grps	24	26938.56	1122.44		

Table 8

Significant Two-way Repeated Measures ANOVA Combined Cold Pressor
Level of Pain Threshold vs Level of Pain Tolerance
Phase III Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Threshold vs Pain Tolerance Phase III	Experimental Groups	1	416.43	416.43	.08	.77
	Subjects Within Grps	24	116941.15	4872.54		
	Repeated Measure (B)	1	19802.45	19802.45	31.69	.000
	B x Subjects W. Grps	24	14996.71	624.86		

pain tolerance scores for both (combined) treatment groups during Phase II (see Table 10); for both (combined) treatment groups during Phase III (see Table 11); and for both (combined) treatment groups during

Table 9

Significant Two-way Repeated Measures ANOVA Combined Cold Pressor
Level of Pain Threshold vs Level of Pain Tolerance
Phase V Results

<u>N = 26</u>						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Threshold vs Pain Tolerance Phase V	Experimental Groups	1	9335.51	9335.51	.93	.34
	Subjects Within Grps	24	240594.63	10024.77		
	Repeated Measure (B)	1	14410.90	14410.90	13.58	.001
	B x Subjects W. Grps	24	25454.05	1060.58		

Table 10

Significant Results of the Multiple Comparison Tests on the Significant
Two-way Repeated Measures ANOVA Combined Cold Pressor Level of Pain
Threshold vs Level of Pain Tolerance Phase II Results ($p < .05$).

Phase II Combined Pain Threshold vs Pain Tolerance				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett <u>t</u>
-42.94	Experimental	16.52*	32.05*	5.66
-65.66	Control	36.97*	14.98*	3.87

(*) Denotes pairs of groups significantly different at the .05 level.

Phase V (see Table 12). These scores reflect the subject's levels of pain threshold and pain tolerance as measured by the elapsed and total time following immersion of the subject's hand into cold water, respectively. These results suggest the consistent presence of a

Table 11

Significant Results of the Multiple Comparison Tests on the Significant Two-way Repeated Measures ANOVA Combined Cold Pressor Level of Pain Threshold vs Level of Pain Tolerance Phase III Results ($p < .05$).

Phase III Combined Pain Threshold vs Pain Tolerance				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
-36.1	Experimental	16.92*	21.60*	4.64
-41.95	Control	25.03*	13.34*	3.65

(*) Denotes pairs of groups significantly different at the .05 level.

Table 12

Significant Results of the Multiple Comparison Tests on the Significant Two-way Repeated Measures ANOVA Combined Cold Pressor Level of Pain Threshold vs Level of Pain Tolerance Phase V Results ($p < .05$).

Phase V Combined Pain Threshold vs Pain Tolerance				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
-24.64	Experimental	17.62*	9.28*	3.04
-41.94	Control	35.19*	6.74*	2.59

(*) Denotes pairs of groups significantly different at the .05 level.

significant difference between the level of pain threshold and level of pain tolerance for the (combined) Experimental and Control groups across all phases and conditions.

Results from a two-way ANOVA with repeated measures performed on the cold pressor test indicated no significant difference in scores between hand A and hand B for Phase II pain threshold and pain

tolerance scores (see Table 13 and 14, respectively). Results did

Table 13

Non-significant Two-way Repeated Measures ANOVA Level of Pain Threshold
Cold Pressor Hand A vs Hand B Phase II Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain Threshold	Experimental Groups	3	8532.28	2844.09	.87	.47
	Subjects Within Grps	22	71885.57	3267.52		
	Repeated Measure (B)	1	.07	.07	5.12	.99
	B x Subjects W. Grps	22	33670.34	1530.47		

Table 14

Non-significant Two-way Repeated Measures ANOVA Level of Pain Tolerance
Cold Pressor Hand A vs Hand B Phase II Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain Tolerance	Experimental Groups	3	3008.68	1002.89	.10	.95
	Subjects Within Grps	22	213943.41	9724.67		
	Repeated Measure (B)	1	1172.20	1172.20	.57	.45
	B x Subjects W. Grps	22	44675.56	2030.70		

indicated, however, a significant difference in scores between hand A and hand B for Phase III pain threshold $F(1, 22) = 7.43, p < .012$; Phase III pain tolerance $F(1, 22) = 9.07, p < .006$; Phase V pain threshold $F(1, 22) = 5.27, p < .031$; and Phase V pain tolerance $F(1, 22) = 5.21, p < .032$ (see Tables 15, 16, 17, and 18, respectively.)

Table 15

Significant Two-way Repeated Measures ANOVA Cold Pressor Level of
Pain Threshold Hand A vs Hand B Phase III Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain	Experimental Groups	3	14496.53	4832.17	1.90	.15
Threshold	Subjects Within Grps	22	55863.59	2539.25		
Hand A	Repeated Measure (B)	1	10267.17	10267.17	7.43	.012
vs	B x Subjects W. Grps	22	30392.58	1381.48		
Hand B						
Phase III						

Table 16

Significant Two-way Repeated Measures ANOVA Cold Pressor Level of
Pain Tolerance Hand A vs Hand B Phase III Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain	Experimental Groups	3	14830.25	4943.41	.60	.61
Tolerance	Subjects Within Grps	22	179741.33	8170.06		
Hand A	Repeated Measure (B)	1	23541.21	23541.21	9.07	.006
vs	B x Subjects W. Grps	22	57102.08	2595.54		
Hand B						
Phase III						

Results from multiple comparison analyses, however, revealed no statistically significant difference between hand A and hand B across both pain threshold and pain tolerance for both Phases (see Tables 19 and 20, 21 and 22). These scores reflect the subject's levels of pain threshold and pain tolerance as measured by the elapsed and total

Table 17

Significant Two-way Repeated Measures ANOVA Cold Pressor Level of
Pain Threshold Hand A vs Hand B Phase V Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain	Experimental Groups	3	73424.61	24474.87	3.78	.02
Threshold	Subjects Within Grps	22	142177.47	6462.61		
Hand A	Repeated Measure (B)	1	11596.43	11596.43	5.27	.031
vs	B x Subjects W. Grps	22	48391.00	2199.59		
Hand B						
Phase V						

Table 18

Significant Two-way Repeated Measures ANOVA Cold Pressor Level of
Pain Tolerance Hand A vs Hand B Phase V Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Pain	Experimental Groups	3	58168.25	19389.41	1.52	.23
Tolerance	Subjects Within Grps	22	278941.37	12679.15		
Hand A	Repeated Measure (B)	1	14890.95	14890.95	5.21	.032
vs	B x Subjects W. Grps	22	62777.60	2853.52		
Hand B						
Phase V						

time following immersion of the subject's hand into cold water, respectively. These results suggest the absence of a significant difference in level of pain threshold and level of pain tolerance between hands for all subjects across all Phases and treatment conditions.

Table 19

Non-significant Results of the Multiple Comparison Tests for the
Significant Two-way Repeated Measures ANOVA Cold Pressor
Phase III Pain Threshold Scores ($p < .05$).

Hand A-Hand B Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett \bar{t}
47.49	Within	63.78	3.32	1.82
-1.86	Between	13.51	.12	.35
39.74	Contact C	53.91	3.03	1.74
18.3	No Contact C	29.90	2.87	1.69

(*) Denotes pairs of groups significantly different at the .05 level.

Table 20

Non-significant Results of the Multiple Comparison Tests for the
Significant Two-way Repeated Measures ANOVA Cold Pressor
Phase III Pain Tolerance Scores ($p < .05$).

Hand A-Hand B Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett \bar{t}
78.74	Within	92.86	4.30	2.07
-17.49	Between	38.38	1.37	1.17
54.63	Contact C	55.74	5.37	2.31
44.60	No Contact C	78.34	2.5	1.58

(*) Denotes pairs of groups significantly different at the .05 level.

Results from a two-way ANOVA with repeated measures performed on
the (combined) cold pressor test indicated no significant difference in

Table 21

Non-significant Results of the Multiple Comparison Tests for the
Significant Two-way Repeated Measures ANOVA Cold Pressor
Phase V Pain Threshold Scores ($p < .05$).

Hand A-Hand B Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
69.85	Within	103.73	2.71	1.68
-3.55	Between	9.56	.91	.95
36.48	Contact C	45.41	3.60	1.9
3.4	No Contact C	10.01	.89	.94

(*) Denotes pairs of groups significantly different at the .05 level.

Table 22

Non-significant Results of the Multiple Comparison Tests for the
Significant Two-way Repeated Measures ANOVA Cold Pressor
Phase V Pain Tolerance Scores ($p < .05$).

Hand A-Hand B Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
69.78	Within	96.64	3.12	1.76
-13.76	Between	29.84	1.40	1.18
53.65	Contact C	74.17	2.92	1.71
8.95	No Contact C	18.76	1.7	1.32

(*) Denotes pairs of groups significantly different at the .05 level.

scores between hand A and hand B for Phase II pain threshold and pain tolerance scores (see Tables 23 and 24, respectively). Results did

Table 23

Non-significant Two-way Repeated Measures ANOVA Combined Level of Pain
Threshold Cold Pressor Hand A vs Hand B Phase II Results

N = 26

Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Threshold Hand A vs Hand B Phase II	Experimental Groups	1	5542.66	5542.66	1.77	.19
	Subjects Within Grps	24	74875.19	3119.8		
	Repeated Measure (B)	1	.07	.07	5.27	.99
	B x Subjects W. Grps	24	35676.27	1486.51		

Table 24

Non-significant Two-way Repeated Measures ANOVA Combined Level of Pain
Tolerance Cold Pressor Hand A vs Hand B Phase II Results

N = 26

Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Tolerance Hand A vs Hand B Phase II	Experimental Groups	1	56.09	56.09	.00	.93
	Subjects Within Grps	24	216896.00	9037.33		
	Repeated Measure (B)	1	1172.20	1172.20	.58	.45
	B x Subjects W. Grps	24	48485.86	2020.24		

indicated, however, a significant difference in scores between hand A and hand B for Phase III pain threshold $F(1, 24) = 7.03$, $p < .01$; Phase III pain tolerance $F(1, 24) = 7.82$, $p < .01$; Phase V pain threshold $F(1, 24) = 4.73$, $p < .04$; and Phase V pain tolerance $F(1, 24) = 4.63$,

$p < .04$ (see Tables 25, 26, 27, and 28, respectively). Results from

Table 25

Significant Two-way Repeated Measures ANOVA Combined Level of Pain
Threshold Cold Pressor Hand A vs Hand B Phase III Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Threshold Hand A vs Hand B Phase III	Experimental Groups	1	959.07	959.07	.33	.57
	Subjects Within Grps	24	69401.05	2891.71		
	Repeated Measure (B)	1	10267.17	10267.17	7.03	.01
	B x Subjects W. Grps	24	35035.02	1459.79		

Table 26

Significant Two-way Repeated Measures ANOVA Combined Level of Pain
Tolerance Cold Pressor Hand A vs Hand B Phase III Results

<u>N</u> = 26						
Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Tolerance Hand A vs Hand B Phase III	Experimental Groups	1	96.91	96.91	.01	.91
	Subjects Within Grps	24	194474.67	8103.11		
	Repeated Measure (B)	1	23541.21	23541.21	7.82	.01
	B x Subjects W. Grps	24	72216.56	3009.02		

multiple comparison analyses revealed a statistically significant
difference between hand A and hand B across both pain threshold and

Table 27

Significant Two-way Repeated Measures ANOVA Combined Level of Pain
Threshold Cold Pressor Hand A vs Hand B Phase V Results

N = 26

Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Threshold Hand A vs Hand B Phase V	Experimental Groups	1	16330.75	16330.75	1.96	.17
	Subjects Within Grps	24	199271.33	8302.97		
	Repeated Measure (B)	1	11596.43	11596.43	4.73	.04
	B x Subjects W. Grps	24	58780.64	2449.19		

Table 28

Significant Two-way Repeated Measures ANOVA Combined Level of Pain
Tolerance Cold Pressor Hand A vs Hand B Phase V Results

N = 26

Scale	Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Combined Pain Tolerance Hand A vs Hand B Phase V	Experimental Groups	1	4283.58	4283.58	.30	.58
	Subjects Within Grps	24	332826.05	13867.75		
	Repeated Measure (B)	1	14890.95	14890.95	4.63	.04
	B x Subjects W. Grps	24	77129.53	3213.73		

pain tolerance during Phase III for the (combined) Control group (see Table 29 and 30, respectively). Results from multiple comparison analyses, however, revealed no statistically significant difference between hand A and hand B across both pain threshold and pain tolerance

Table 29

Significant Results of the Multiple Comparison Tests on the Significant Two-way Repeated Measures ANOVA Combined Cold Pressor Level of Pain Threshold Hand A vs Hand B Phase III Results ($p < .05$).

Phase III Combined Pain Threshold Hand A vs Hand B				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
24.71	Experimental	33.66	2.55	1.6
31.49	Control	31.61	4.71*	2.17

(*) Denotes pairs of groups significantly different at the .05 level.

Table 30

Significant Results of the Multiple Comparison Tests on the Significant Two-way Repeated Measures ANOVA Combined Cold Pressor Level of Pain Tolerance Hand A vs Hand B Phase III Results ($p < .05$).

Phase III Combined Pain Tolerance Hand A vs Hand B				
Group Mean Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
34.32	Experimental	54.36	1.89	1.3
50.78	Control	37.96*	8.49*	2.95

(*) Denotes pairs of groups significantly different at the .05 level.

during Phase III for the (combined) Experimental group. Additionally, multiple comparison analyses revealed no statistically significant difference for both (combined) treatment groups between hand A and hand B across both pain threshold and pain tolerance during Phase V (see Table 31 and 32, respectively). These scores reflect the subject's levels of pain threshold and pain tolerance as measured by the elapsed

Table 31

Non-significant Results of Multiple Comparison Test for the Significant
Two-way Repeated Measures ANOVA Combined Cold Pressor Phase V Pain
Threshold Hand A vs Hand B Scores ($p < .05$).

Combined Pain Threshold Hand A vs Hand B				
Group Mean				
Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
35.97	Experimental	53.28	2.16	1.47
23.75	Control	27.18	3.62	1.90

(*) Denotes pairs of groups significantly different at the .05 level.

Table 32

Non-significant Results of Multiple Comparison Test for the Significant
Two-way Repeated Measures ANOVA Combined Cold Pressor Phase V Pain
Tolerance Hand A vs Hand B Scores ($p < .05$).

Combined Pain Tolerance Hand A vs Hand B				
Group Mean				
Difference	Treatment	Fisher PLSD	Scheffe F-test	Dunnett t
31.22	Experimental	52.94	1.65	1.28
36.46	Control	43.49	3.33	1.82

(*) Denotes pairs of groups significantly different at the .05 level.

and total times following immersion of the subject's hand into cold water, respectively. These results suggest the absence of a consistently significant difference in level of pain threshold and level of pain tolerance between hands for all subjects across all Phases and treatment conditions.

Summary of the Results

All preliminary, additional, and supplemental analyses only included those subjects with initial cold pressor pain threshold and pain tolerance scores at or below 250 seconds in order to most effectively assess changes in the cold pressor measures. Results from a supplemental two-way repeated measures ANOVA performed on the cold pressor test indicated a significant difference in scores between pain threshold and pain tolerance across all Phases. Both the Fisher PLSD and Scheffe F-test multiple comparison tests revealed statistically significant differences between the pain threshold and pain tolerance scores across all treatment groups during Phase II; for all treatment groups except the No Contact Control group during Phase III; and for the Between Class and Contact Control groups during Phase V. Multiple comparison tests revealed non-significant results for the Contact Control group during Phases III and V, in addition to non-significant results for the Within Class group during Phase V.

Results from an additional supplemental two-way repeated measure ANOVA analyses performed on the (combined) cold pressor test indicated a significant difference in the pain threshold and pain tolerance scores across all Phases. Both the Fisher PLSD and Scheffe F-test multiple comparison tests revealed statistically significant differences between the pain threshold and pain tolerance scores for both (combined) treatment groups during all Phases.

Results from a supplemental two-way ANOVA with repeated measures performed on the cold pressor test indicated no significant difference

in scores between hand A and hand B for Phase II pain threshold and pain tolerance scores. Results did indicate, however, a significant difference in pain threshold and pain tolerance scores between hand A and hand B for both Phases III and V. Results from multiple comparison analyses, however, revealed no statistically significant difference between hand A and hand B across both pain threshold and pain tolerance for both Phases.

Results from an additional supplemental two-way ANOVA with repeated measure analyses performed on the cold pressor test indicated no significant difference between hand A and hand B for Phase II pain threshold and pain tolerance scores. Results indicated a significant difference, however, between hand A and hand B for Phase III and V pain threshold and pain tolerance scores. Results from multiple comparison analyses revealed a statistically significant difference between hand A and hand B across both pain threshold and pain tolerance during Phase III for the (combined) Control group and no statistically significant difference for the (combined) Experimental group. Additionally, the multiple comparison analyses did not reveal any statistically significant differences between hand A and hand B for either (combined) treatment group for both pain threshold and pain tolerance during Phase V.

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