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Four forms of group treatment were compared for their relative therapeutic effectiveness in reducing snake fear. The treatments included (1) cognitive restructuring (CR), which emphasized making subjects aware of their irrational self-statements by providing them with an understanding of the etiology of their fear; (2) verbal extinction (VE), a treatment that involved discussions of experiences related to the anxiety-provoking stimulus; (3) systematic desensitization (SD), a standard technique control; and (4) an attention-placebo control treatment (AP). A no-treatment control group was also included in the study. Results indicated that CR was as effective as SD in reducing behavioral avoidance over NC and AP control group levels. On the two verbal-cognitive measures of snake fear used in the study, CR produced significant improvement relative to the NC and AP groups. VE treatment was found to be facilitative in reducing subjective fear behavior, but it did not produce changes of sufficient magnitude to be significantly better than the NC group. An analysis of pre-treatment to post-treatment changes in heart rate failed to yield a significant treatment effect.

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Since CR contained elements of both verbal extinction and re-attribution, the finding that CR was superior to VE indicated that re-attribution is a critical component of the CR procedure. The results were also interpreted as supporting the view that a direct attempt to modify fearful self-verbalizations will produce correlated changes in overt-motor performance.

COGNITIVE RESTRUCTURING AND VERBAL EXTINCTION EFFECTS IN TREATING SNAKE PHOBIA

by

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CHAPTER I

INTRODUCTION

Behavior therapy has been repeatedly criticized for failing to focus attention on the role of cognition in the production and elimination of behavior problems. The allegation that the behavioral model does not account for the covert aspect of behavior change has led to a controversy concerning the adequacy of the theoretical basis of behavior therapy (see Yates, 1970). Breger and McGough (1965), in a well-known critique, attack the behaviorist's "naive emphasis on the overt discrete motor response as the meaningful unit of human behavior." Murray (1963) takes a similar position, arguing that behavior therapy restricts its interest to overt muscular responses and peripheral autonomic reactions. More recently, Murray and Jacobson (1971) have suggested that the behavioral approach tends to avoid consideration of cognitive processes, and that it does not recognize the importance of the entire cognitive response system.

Although these criticisms were perhaps accurate ten years ago, they are not justifiable for contemporary behavior therapy. A learning approach to therapy does not preclude a consideration of cognitive variables. The importance of cognitions as fundamental parameters of human

learning has been the topic of extensive investigation [see Murray and Jacobson (1971) for a review of this literature]. Furthermore, the current state of theory in behavior therapy considers cognitions as fundamental responses for behavioral assessment and modification.

Research dealing with the definition, measurement, and treatment of anxiety illustrates the importance of covert responses for behavior therapists. As Lang (1968) points out, anxiety is not a unitary response; it is a construct, created to describe the complex pattern of responses evidenced in the three main expressive modes of the body. These include the somatic, the overt-motor, and the cognitive dimensions of responsivity. Although anxiety may appear in each of the basic modes, the correlations between each of the anxiety dimensions is quite low (Bernstein, 1973; Lang, 1968, 1969; Schroeder & Craine, 1972). Furthermore, correlations between different measures of anxiety <u>within</u> each dimension are poor (Bernstein, 1973; Schroeder & Craine, 1971; Levis, 1969). The recognition of anxiety as a non-unitary construct has made a multi-channel assessment of anxiety a necessity in behavior therapy. Consistent with the "triple-response mode" (Lang, 1968), attempts are now made to measure and treat independently the somatic, the overt-motor, and the

cognitive components of the anxiety complex. Since little is known about the direction and extent of interaction among the three components, the behavior therapist never assumes that one response modality is paramount over the other two. Thus, covert responses have as much validity in behavioral assessment and treatment as do physiological and overt-motor responses.

On occasion, a multi-channel assessment of fear behavior indicates a need for modification in the verbal-cognitive dimension. Since many of the popular behavior therapy techniques (i.e., systematic desensitization) fail to produce changes in this response modality, several cognitive modification procedures have been developed. A crucial assumption of each of these techniques is that the presentation of covert stimuli influence behavior in a manner similar to the presentation of external stimuli. Theoretical support and experimental evidence for this assumption is reviewed by Cautela (1970a).

Wolpe (1969) developed a cognitive modification technique known as thought-stopping to reduce the frequency of unrealistic, unproductive, and anxiety-arousing self-statements. The procedure involved training the client to interrupt his unadaptive train of thoughts by saying subvocally the word "stop," or by concentrating on an

alternative cognition. Wolpe viewed thought-stopping as a procedure which follows the operant learning paradigm; reinforcement for thought interruption occurs each time that the response is instrumental in reducing anxiety.

Another attempt to control the frequency of self-statements was Homme's (1965) application of the Premack differential probability hypothesis to "coverant" responses. In this procedure, contingencies are self-managed such that the execution of a high probability (and thus reinforcing behavior) is contingent upon the execution of some lower probability covert behavior.

Homme has provided a technology to control the frequency of any covert response via the manipulation of overt behavioral consequences. Cautela (1966, 1967, 1970a, 1971), on the other hand, has developed a series of procedures aimed at modifying cognitive behavior via the manipulation of covert consequent conditions. One of these techniques, covert sensitization (Cautela, 1967) is a form of aversion therapy in which the client imagines both the conditioned responses and an aversive consequence. This procedure has been successful in treating obesity (Cautela, 1967; Janda & Rimm, 1972), alcoholism (Ashem & Donner, 1968), and homosexuality (Gold & Neufeld, 1965). Recently, Callahan and Leitenberg (1973) have shown that covert

sensitization (using covert conditioned and aversive stimuli) is as successful as aversive counter-conditioning (using overt conditioned and aversive stimuli) in reducing maladaptive approach behaviors.

Other procedures outlined by Cautela include covert reinforcement (Cautela, 1970a), covert extinction (Cautela, 1971), and covert negative reinforcement (Cautela, 1970b). The first technique involves the presentation of both a response and a reinforcing stimulus in imagination to increase response probability. Cautela (1970a) reports that this approach has been successful in treating a wide variety of behavior problems. Covert extinction, the second procedure, simply involves the imaginal presentation of a discriminative stimulus without reinforcement of the covert response. Since the reinforcing stimuli maintaining covert and overt behavior do not occur, the application of this procedure results in the reduction or elimination of the target behavior. Covert negative reinforcement is essentially an avoidance-conditioning procedure. Termination of a strong aversive imaginal stimulus is made contingent upon the imaginal presentation of the target behavior, resulting in an increase in the probability of that behavior.

The cognitive modification procedures of Wolpe, Homme, and Cautela have focused on the manipulation of overt and

covert consequent conditions to effect changes in covert behavior with concurrent changes in overt behavior. Another category of cognitive therapy procedures is concerned with the manipulation of covert antecedent events, and their effects on target behaviors. The rationale underlying these techniques comes from the findings that private statements are teachable (Luria,1961; Meichenbaum, 1969, 1971a) and that they function as internally generated discriminative stimuli for behavior (Luria, 1961; Meichenbaum, 1971d; Meichenbaum & Goodman, 1969). Typically, attempts are made to modify an individual's self-verbalizations so that they direct and regulate behavior in an instrumental fashion. Meichenbaum (1971d) has developed a cognitive self-guidance training technique that directly teaches private speech by means of modeling and covert rehearsal. This approach has been especially effective with those individuals that appear to have an inadequate repertoire of self-instructional statements, i.e., schizophrenic patients (Meichenbaum, 1969) and impulsive children (Meichenbaum, 1971a).

Ellis' (1962) rational-emotive therapy represents another therapeutic approach that emphasizes the antecedent function of self-verbalizations. This technique attempts to produce behavioral changes by making clients

aware of those inappropriate statements that function as discriminative stimuli for their behavior, and by training them to talk to themselves in a more rational, directive, and self-regulatory fashion.

An important assumption underlying each of these behavioral approaches to cognitive change is that there is a functional equivalence between external and covert stimuli. Private behaviors are assumed to obey the same psychological laws as overt behaviors (Bandura, 1969; Cautela, 1970; Homme, 1965). The success of the cognitive modification procedures indicates that private behavioral events are open to manipulation in the same manner as overt behaviors.

Recently, a great deal of interest has focused on the outcome of behaviorally-oriented cognitive therapies in the treatment of fear behaviors. Two controlled investigations of Ellis' rational-emotive therapy provide evidence for the effectiveness of this procedure (Meichenbaum, Gilmore, & Fedoravicius, 1971; Trexler & Karst, 1972). In both studies, therapy involved group discussions of the basic irrational ideas and self-verbalizations that were emitted related to past anxiety-provoking situations. The self-defeating aspects of these internalized sentences were discussed and more appropriate ones were suggested.

The results of both studies indicated that the cognitive modification groups were more effective in significantly reducing anxiety than attention-placebo and no-treatment controls on behavioral and self-report (cognitive) measures. In the study where systematic desensitization was included in the experimental design as a standard technique control group (Meichenbaum, et al., 1971), the cognitive therapy group proved to be as effective as desensitization in reducing subjective and overt motor speech anxiety.

Goldfried, Decenteceo, and Weinberg (in press) have recommended a number of modifications in the procedure of rational-emotive therapy. These include the use of a hierarchy of increasingly difficult situations for the evaluation of self-statements, and the use of behavioral rehearsal via role playing for the presentation of hierarchy items. The efficacy of adding these elements to Ellis' original treatment package has not been systematically evaluated.

In a series of studies performed by Meichenbaum, various behavior therapy techniques were modified to include the element of self-instructional training and were tested on populations of speech-anxious, test-anxious, and snake-phobic college students. One investigation (Meichenbaum, 1972) compared the relative efficacy of a group cognitive

modification procedure with group desensitization and a no-treatment control group. The cognitive modification group combined rational-emotive therapy with a modified desensitization procedure; modifications included self-instructional training and coping imagery as part of the imagery component of the standard technique. The results indicated that the cognitive modification condition (modified desensitization) was significantly more effective than orthodox desensitization on both behavioral and verbal-cognitive measures of fear. Several researchers have suggested that standard desensitization fails to deal directly with the cognitive component of the fear response complex (Davison, 1968; Johnson & Sechrest, 1968; Meichenbaum, 1971d; Paul, 1966). The modified procedure, however, directly alters the client's cognitive processes as well as his overt behavior.

Meichenbaum has improved and altered two other behavior therapy techniques to effect changes in phobic clients' self-verbalizations. In one investigation, the standard modeling procedure (Geer & Turtletaub, 1967) was modified to include the explicit modeling of self-instructional and self-rewarding statements, as well as fearless motor behavior (Meichenbaum, 1971b). The author found this procedure to be superior (on behavioral and self-report fear measures) to a traditional modeling group that did not attempt to

alter cognitive processes. Meichenbaum (1971a) has also successfully altered the anxiety-relief procedure of Wolpe and Lazarus (1966) to be consistent with the cognitive modification approach. Although the verbal-cognitive behavior of reporting oneself as anxious is not treated directly by many of the popular behavior therapy techniques, Meichenbaum's modified versions of these procedures directly affect what phobic clients say to themselves.

Recently, a cognitive modification procedure known as covert modeling has been shown to be effective in reducing behavioral and subjective fear (Kazdin, 1973). This technique involves the presentation of covert modeling stimuli via instructions to achieve reductions in fear behavior. The subject is required to imagine a model engaging in various approach behaviors to the feared stimulus object. The modification of the client's covert processes (imaginal representations) are assumed to mediate behavior change (Bandura, 1969).

The accelerating number of cognitive modification techniques indicates that behavior therapy at times considers cognitive factors as fundamental targets for behavior change. The frequent criticism that the behavioral approach de-emphasizes the importance of the individual's cognitive processes is not a valid one. Cognitive therapy

analogue research with fears and phobias has been extensive, and the data indicate that cognitive modification techniques are effective in reducing overt-motor and self-reported fear behavior. Therapeutic changes in physiological behavior, however, have not been evaluated. Furthermore, no attempts have been made to specify those components of the cognitive procedures that are responsible for behavior change.

The particular form of cognitive therapy used in the present investigation was the cognitive restructuring technique of D'Zurilla, Wilson, and Nelson (1973). Although this technique was originally conceived as a placebo control, it was the only treatment to obtain therapeutic gains in subjective fear behavior from a set of treatments that included systematic desensitization and graduated prolonged exposure. Fearful subjects were prompted to verbalize past experiences involving the feared stimuli, and were provided with an understanding of the etiology of their fear in terms of various learning theory rationales. The possible basic irrational ideas underlying their anxiety were exposed and challenged, and several theoretical accounts of the origin of unrealistic fears were presented as more rational counterparts.

An examination of the cognitive restructuring procedure suggests that two psychological processes may be

involved in reducing fear behavior. One of these is verbal extinction, because treatment was conducted in groups where subjects described anxiety-provoking experiences and engaged in prolonged verbal exposure to past threatening situations without experiencing aversive consequences. Staats and Staats (1963) suggest that a critical component of therapy with fears and phobias consists of extinguishing anxiety responses elicited by language sequences. By emitting anxiety-provoking verbalizations, the aversive nature of these verbal responses is reduced.

The second process involved in cognitive restructuring is a relabeling of anxiety-provoking stimuli so as to provide a rational explanation for the development of the fear. D'Zurilla and his associates referred to this relabeling process as "perceptual relearning." It can be viewed as a re-attribution of the fear behavior from the phobic stimulus complex to the individual client's incorrect interpretation of the development of his fear. In cognitive restructuring, an attempt is made to substitute the perceived causal bond between the client's fear behavior and the phobic stimulus with a new causal bond between the fear behavior and an irrational set of beliefs regarding the fear's etiology. Theoretical support for the value of re-attribution in therapy comes from Schacter and Singer (1962)

who have demonstrated that subjects given different cognitions concerning the source of their emotional behavior will respond differentially to an arousal situation. Other demonstrations, notably one by Ross, Rodin, and Zimbardo (1969) indicate that the presentation of an alternative source to which an individual's arousal state could be misattributed can eliminate fear behavior in the presence of anxiety-provoking stimuli.

The present experiment was an attempt (1) to systematically investigate the relative contributions of the verbal extinction versus the re-attribution processes in cognitive restructuring, and (2) to assess the therapeutic value of the cognitive restructuring technique on measures representing each of the three response modes in the anxiety complex.

The study compared the cognitive restructuring treatment of D'Zurilla et al. (1973) with a verbal extinction treatment that involved prolonged discussions of anxiety-provoking situations. Three kinds of control groups were included. In one group, systematic desensitization was administered to provide a standard technique comparison (Bernstein & Paul, 1971). The other two control groups received an attention-placebo and no treatment. The subjects suffered from a snake phobia and were treated for that specific problem.

CHAPTER II

METHOD

Experimental Design

Following a pre-treatment assessment battery, 40 female college students who demonstrated a fear of snakes were assigned to one of five groups: Cognitive Restructuring (CR), Verbal Extinction (VE), Systematic Desensitization (SD), Attention-Placebo (AP), and a No-Treatment Control group (NC). In order to control for possible therapist bias, two groups of four subjects were included in each treatment condition; each of the two groups received their treatment from one of two therapists. Two hour-long treatment sessions were conducted each week for a period of 3 weeks. Following a post-treatment assessment, change scores were computed in order to evaluate relative therapeutic gains on behavioral, verbal, and physiological measures of fear.

Subjects

In the context of introductory psychology classes 1,273 female undergraduate students were given a modified Fear Survey Schedule (Wolpe & Lang, 1964) [see Appendix A]; on this version, the students indicated on a 5-point rating scale (1 = not at all fearful to 5 = terrified) the degree

to which they feared six stimuli, one of which was snakes. The 394 students whose self-ratings for the snake item was either four or five and who indicated a willingness to participate in a fear-reduction treatment program were requested to undergo additional pre-treatment assessment.

Apparatus

During the initial phase of the pre-treatment assessment, the subject sat upright in a chair located at one end of a pulley track, which was a modified Levis phobic test apparatus (1969). At the other end of the track, 9 feet away from the subject, was a plexiglass cage (18"x 16"x14") containing the snake. The distance between the snake and the subject was manipulated by means of a switch attached to the apparatus; closure of the switch moved the snake toward the subject in one foot intervals. The Levis apparatus was designed to require a minimum of skeletal movement in order for the subject to display approach responses.

Additional apparatus used in the pre-treatment assessment included a Grass polygraph (Model #7) which measured heart rate and a manual event recorder (attached to the polygraph) which measured specific time intervals. Three gold-plated electrodes were attached to the subject; one electrode was attached to each ear, and a third was attached to the subject's left wrist.

Pre-Treatment Assessment

Before the administration of the behavioral avoidance test (BAT), each subject was given specific instructions regarding procedures for handling snakes, together with basic factual information about snakes' characteristics (see Appendix B). The content of the snake information is similar to that used by Bandura, Blanchard, and Ritter (1969); the subjects were informed that snakes are dry, usually cool to the touch, and that they often flick their tongues for exploratory purposes. Bernstein and Paul (1971) have reported that subjects given such information and instructions for handling snakes do so significantly more quickly (while appearing to be less fearful) than uninstructed subjects. The instructions and factual information were therefore included to minimize the likelihood that a subject was classified as fearful because she was unfamiliar with snakes or uncertain about handling them.

After entering the avoidance test room, each subject was seated and had the three polygraph electrodes attached. Two minutes were permitted to elapse in order to permit an adequate adaptation to the novel surroundings. The examiner then read a set of standardized instructions (see Appendix C). Each subject was asked to cooperate with the examiner by proceeding as far as possible through a series of increasing approach behaviors to a non-poisonous snake.

The BAT was administered to each subject individually by one of six examiners. As shown in Appendix D, the BAT consisted of 21 items requiring progressively more intimate behavioral interactions with a 66-inch boa constrictor. The first 10 BAT items were defined in terms of the number of feet between the caged snake and the subject. The remaining 11 items required more active approach behaviors on the part of the subject. Some of the later items included touching the cage with bare hands (item 12), touching the snake with bare hands (item 17), and finally, holding the snake close to the chest for 15 seconds (item 21).

In addition to the behavioral avoidance measure, two other fear measures were taken during the administration of the BAT: a self-report measure of subjective fear and a measure of heart rate. As the subject progressed through each step of the 21 ascending approach behaviors, she was asked to estimate her subjective fear on a 10-point Fear Thermometer (FT) (Walk, 1956). Fear thermometer ratings were made by the subject before the performance of each approach behavior in order to evaluate the fear each subject felt as she anticipated the item.

The duration of time required for the completion of each BAT item, and the number of heart beats emitted by each subject during the performance of each item was

recorded by the manual event recorder and the polygraph, respectively. Heart rate for each BAT item was measured by dividing the number of heart beats for each item by the number of seconds required for the item's completion, and multiplying by 60. This procedure resulted in a heart rate measure expressed in beats per minute.

Throughout the BAT, demand characteristics were manipulated such that hesitant subjects were encouraged to proceed with the next item. When a subject indicated that she wished to terminate the testing session, she was immediately advised to "try just one more item." If the next BAT item was not completed after 30 seconds, a second prompt was provided. The examiner dismissed the subject from the avoidance testing room after a period of 60 seconds. After the completion of each BAT item, the examiner reinforced the subject with the comment, "Thank you for your cooperation." No subject was informed prior to the pre-test that she would have the opportunity to try the BAT again after treatment. This "high-demand-for-approach" test was designed to minimize the influence of other variables which perhaps may have reduced approach behaviors (Bernstein & Paul, 1971).

The score for the measure of behavioral avoidance consisted of the BAT item number corresponding to the subject's closest snake approach behavior. The self-report score

consisted of the fear thermometer rating corresponding to the same BAT item, and the heart rate score consisted of the mean heart rate (expressed in beats per minute) during the subject's performance of this item. Each of the scores was entered by the examiner on an individual data sheet (see Appendix E).

Following the BAT, each subject was escorted to an adjoining room where she received a Personal Reactions Questionnaire consisting of the S-R Inventory of Anxiousness (SRIA)(Endler, Hunt, & Rosenstein, 1962) (see Appendix F). The four stimulus items used in conjunction with the SRIA were designed to elicit progressively more anxiety arousal. The stimulus items were "thinking about a snake," "looking at a caged snake at a distance of 10 feet," "sitting directly in front of a caged snake," and "holding a snake with bare hands." The Personal Reactions Questionnaire included questions regarding the subject's phobic history, and her expectation of benefit from treatment. Additional prognostic ratings of treatment benefit were made after the first and last treatment sessions (see Appendix G).

Treatment Procedures

Those subjects who failed to place their hand in the snake's cage (item 15) were considered to be sufficiently

fearful to benefit from treatment. Of the 347 subjects who took the BAT, 75 met this criterion, but only 58 chose to participate in treatment. Because of this difficulty in obtaining subjects who were fearful on this high-demand BAT, this study required two semesters to complete. Two treatments were randomly chosen (from the set of four treatments) to be conducted during each semester. Both therapists conducted the cognitive restructuring and verbal extinction groups during one semester and systematic desensitization and attention-placebo during the other semester. The no-treatment control group was divided such that subjects received pre- and post-treatment assessments during both semesters. There is no reason to believe that this temporal sequence engendered any form of systematic error into the study. On the basis of matching criteria, 40 of the 58 subjects were chosen to be divided into 10 groups. These groups were matched with respect to the behavioral measure (BAT), the heart rate measure, and one self-report measure (FT) such that group means and standard deviations were homogeneous. These groups were randomly assigned to one of five experimental conditions and to one of two therapists. Each of the experimental conditions therefore consisted of two groups of equally fearful subjects (as defined by the BAT, FT, and heart rate measures). Each of

the four treatments was conducted with a group of four subjects by one of the two therapists; the remaining eight subjects were pooled in the no-treatment control condition.

Cognitive Restructuring (CR) (See Appendix I-1). The focus of this group treatment technique, originally conceived by D'Zurilla, Wilson, and Nelson (1973), was to provide the subjects with an understanding of the etiology of their fear of snakes in terms of learning theory. The emphasis was on "perceptual relearning," that is, relabeling past threatening situations involving snakes with rational explanations based on learning principles. Treatment was conducted through group discussion where subjects related their own snake-related experiences to various theoretical accounts of the original learning of their unrealistic fear. This treatment technique is related to other behaviorally-oriented treatment techniques which emphasize cognitive change (Beck, 1970; Ellis, 1962; Lazarus, 1971); for example, with Ellis' Rational-Emotive Therapy, behavioral changes are expected via labeling particular thoughts as "irrational ideas." CR also provided a control for nonspecific factors involved in therapy including interpersonal interaction, expectation of benefit, a rational explanation for the phobia, and unsystematic attention to details related to snakes.

In order to parallel the procedures related to systematic desensitization, the first two sessions consisted of an explanation for the rationale and course of treatment, together with "recall training" in which subjects were encouraged to recall neutral events from their pasts. In addition, each subject was required to list four accurate and detailed experiences with snakes from her past.

Sessions three through six began with a brief review of the material discussed in the previous session. The subjects then participated in a guided discussion of four snake-relevant experiences (selected from those listed in session two) with regard to various theoretical explanations of the development of unrealistic fears. The length of the discussion of each snake-related experience was 10 minutes. One of the following theoretical accounts was outlined for each of these CR sessions: (1) conditioning and avoidance (Watson & Raynor, 1920); (2) modeling and imitative learning (Bandura & Walters, 1963); (3) cognitive relabeling (Schacter & Singer, 1962); and (4) perceptual learning (Hebb, 1946).

This treatment was designed to (1) engage the subjects in prolonged verbalizations of snake-relevant experiences, (2) lead them to recognize the harmless nature of the anxiety-provoking stimuli, and (3) encourage them to relabel

these stimuli more rationally, i.e., emit appropriate self-statements.

Verbal Extinction (VE) (See Appendix I-2). This group treatment was designed to assess the possible contribution of prolonged verbalizations of anxiety-provoking stimuli in the preceding group. By determining the degree of fear reduction through the mechanism of verbal extinction, the therapeutic effect of cognitive restructuring or "perceptual relearning" (re-attribution) per se, could be evaluated. In the VE group, it was explained to the subjects that their snake fear could be reduced by remembering and verbally re-experiencing past experiences involving snakes. They were informed that (1) phobias persist because of a failure to recollect and verbally express memories, and that (2) by bringing past memories concerning snakes under immediate consideration, the aversive nature of the stimuli would be eliminated. This treatment was therefore referred to as "confrontation therapy" by each of the therapists.

The first two sessions for this group were identical to the CR group. The remaining four sessions were devoted to a discussion of the subjects' personal experiences with snakes (either direct or indirect). Fear experiences were verbalized, each for 10 minutes, thus yoking this procedure to the CR group. In the VE group, the therapist directed

the discussion away from any tendency toward relabeling or emitting more rational self-statements toward snakes.

Systematic Desensitization (SD) -- Standard Technique Control (See Appendix I-3). Following a suggestion by Bernstein and Paul (1971), the group SD condition was included to provide a "standard technique" comparison against which to evaluate the effectiveness of the CR and VE groups. This SD treatment closely followed the systematic desensitization technique of Wolpe (1958, 1969), as modified by Paul (1966), and modified for a group setting by Paul and Shannon (1966); this was also the technique used by D'Zurilla et al. (1973). The first two sessions consisted of (1) an explanation for the rationale and course of treatment, (2) training in deep muscular relaxation together with instructions for home practice of relaxation between the first two sessions, and (3) construction of a 16-item anxiety hierarchy from an initial pool of 35 cards selected by the experimenters (see Appendix H).

The next four sessions consisted of desensitization, per se. Four new items from the hierarchy were completed during each of these sessions.

Attention-Placebo Control (AP) (See Appendix I-4). This group was included for the assessment of the nonspecific factors operating in each of the previous

treatments (i.e., interpersonal client-therapist variables, expectation of benefit). The subjects in this group received the same recall training as in the CR and VE groups during the first two sessions. They were also required to list in detail four past childhood experiences, but these experiences were related to sexual matters rather than to snakes. The subjects were told that their fear of snakes was only a symptom which permitted them to remain unaware of the true anxiety-provoking stimuli which were sexual matters. Davison (1968) suggests the use of this treatment rationale for the measurement of placebo effects, since it is a widespread belief that the recollection of early childhood memories may alleviate adult disorders. Throughout treatment, the behavioral point of view was stongly disavowed by the therapist.

The last four sessions included a discussion of the subjects' early childhood psychosexual developmental experiences. Four experiences were discussed during each session and like the CR and VE conditions, the discussion length for each experience was 10 minutes.

No-Treatment Control (NC). The subjects in this group received no therapy but participated in pre- and post-treatment assessments at the same time as the subjects in the other groups. The subjects were informed that all

applicants could not be accepted into the treatment program because of limited resources. Three weeks after the pre-treatment assessment, a telephone call was made to request that the subjects return for a more detailed assessment of their snake fears.

Post-Treatment Assessment

Individual post-treatment testing was administered to the subjects within one week of the final session by one of five examiners, who were unaware of the conditions to which each subject had been assigned. The sex of the pre- and post-test examiners was held constant for each subject.

Two dependent measures (FT and heart rate) were taken concurrently with the re-administration of the BAT. The change scores for the BAT consisted of the pre-post difference for the last completed BAT item. Change scores for the FT and heart rate measures consisted of the difference between the pre-test score on the last completed BAT item and the post-test score corresponding to that same item (not the last item completed on the post-test).

Immediately following the BAT, the SRIA was re-administered. The change score for the SRIA was assessed by a pre-post comparison.

Therapists

Two male graduate students who had had two years of training and experience in behavior therapy prior to this study served as therapists. In addition to their formal training, each of the therapists participated in several training sessions designed to increase their clinical expertise with respect to the present techniques. Training sessions for each therapy procedure began approximately one month before the therapists administered each treatment technique. In order to standardize the treatment procedures, detailed written manuals were followed by each of the two therapists (see Appendix I). Each therapist conducted one group of four subjects per treatment condition. Failure of a subject to attend a particular group session necessitated an individual make-up session that was conducted by the therapist. Before treatment, each therapist predicted the effectiveness of each treatment procedure using a 5-point rating scale (see Appendix J). Ratings of therapist competence and therapist likeability (see Appendix J) were obtained from each subject during the last session in order to determine the extent to which these factors correlated with improvement scores.

CHAPTER III

RESULTS

Pre-Treatment Matching of Groups

Before treatment, all groups were matched with respect to the behavioral avoidance measure (BAT), the heart rate measure, and one of the two self-report measures, the Fear Thermometer (FT), such that group means and standard deviations were homogeneous. However, during the course of the study, three subjects had to be excluded from the analysis of results because they failed to attend all of the therapy and/or make-up sessions. In order to ensure that the exclusion of these subjects did not affect the pre-treatment equivalence of groups, three separate univariate analyses of variance were conducted on the BAT, FT, and heart rate pre-treatment scores of the remaining 37 subjects (see Table 1). The analyses indicated no significant differences between groups or therapists on any of these dependent variables.

Computation of Difference Scores

In order to examine pre-treatment to post-treatment changes in the subjects' level of snake fear, difference scores were computed for the four dependent measures (BAT, FT, SRIA, heart rate). The score for the BAT consisted of the pre-post difference for the last completed BAT item.

TABLE 1

Analysis of Variance on Pre-Treatment Scores for Behavioral Avoidance Test (BAT), Fear Thermometer (FT), and Heart Rate (HR)

Source	df	MS	F
BAT Pre-Treatment Scores			
Treatments	4	.99	.04
Therapists	1	1.82	.08
Treatments X Therapists	4	.54	.02
Error (within)	27	23.50	
FT Pre-Treatment Scores			
Treatments	4	.34	.14
Therapists	1	.44	.18
Treatments X Therapists	4	.23	.10
Error (within)	27	2.40	
HR Pre-Treatment Scores			
Treatments	4	81.22	.14
Therapists	1	39.00	.07
Treatments X Therapists	4	24.30	.04
Error (within)	27	577.33	

The FT difference score was computed by comparing the fear rating for the last approach response made prior to treatment with the fear rating for the same response at post-treatment. Similarly, the heart rate score was computed by comparing the mean heart rate for the performance of the last completed BAT item during the pre-test with the mean heart rate for the performance of the same item during the post-test. The difference score for the SRIA simply consisted of a pre-post comparison.

Treatment Effects

Multivariate Analysis of Variance. In order to determine the significance of the treatment effect across all measures, the difference scores for the BAT, FT, SRIA, and heart rate measures were submitted to a multivariate analysis of variance. A summary of the analysis is presented in Table 2. A significant main effect of treatment ($U = 0.298$; $df = 4, 4, 30$; Approximate $F = 2.52$; $df = 16, 83.12$; $p < .01$) indicated a differential effect among the five experimental conditions across the four dependent measures. Following the multivariate analysis, each of the four dependent measures was analyzed separately with a modified 5x2 (treatments X therapists) univariate analysis of variance (ANOVA) for use with unequal N's.

TABLE 2

Multivariate Analysis of Variance on the BAT, FT, SRIA,

and Heart Rate Difference Scores

Source	Log (Generalized Variance)	U-Statistic	df	Approximate F	df
Treatments	30.133	0.298	4, 4, 30	2.522**	16, 83.12
Subjects X Treatments	28.924				

**p < .01

Behavioral Avoidance Test. Table 3 presents a summary of the univariate analysis of variance on the BAT difference scores. The results show a highly consistent and significant treatment effect ($F = 5.26$, $df = 4, 27$; $p < .01$), indicating differential improvements among the five experimental conditions. The mean BAT difference scores for each of the treatment groups is presented in Table 4. A calculation of the strength of association, w^2, between treatment effects and BAT change scores indicates that the treatments accounted for 35% of the total variability.

Following the analysis of variance, a Newman-Keuls post-hoc comparison of treatment means was carried out in order to determine the significance of differences among each of the five conditions. The results of the comparison are presented in Table 5. The test revealed that only those subjects who had undergone CR and SD improved significantly on the BAT over subjects who had received NC and AP ($p < .05$ for all comparisons). The subjects in the VE condition did not differ significantly from NC or AP subjects. A comparison between the CR and SD treatment groups indicated no significant or suggestive difference; both treatments produced nearly equal and marked improvement in approach behavior. The AP and NC control conditions also did not differ in pre- to post-treatment changes on the BAT.

TABLE 3

Analysis of Variance on the Behavioral Avoidance Test Difference Scores

Source	df	MS	F
Treatments	4	57.19	5.26**
Therapists	1	0.57	0.05
Treatments X Therapists	4	0.36	0.03
Error (within)	27	10.88	

**p < .01

TABLE 4

Difference Score Means and Standard Deviations for the Behavioral Avoidance Test

Treatment	N	Mean	SD
CR	8	6.50	2.39
SD	7	7.14	4.18
VE	8	3.50	3.59
AP	7	1.29	2.50
NC	7	1.29	1.98

TABLE 5

Newman-Keuls Comparison of Treatment Means for Behavioral Avoidance Test Difference Scores

	SD	CR	VE	AP	NC	r	C.V. for = .05	C.V. for = .01
SD		0.65	3.65	5.86*	5.86*	5	5.00	6.18
CR			3.00	5.21*	5.21*	4	4.68	5.87
VE				2.21	2.21	3	4.25	5.45
AP					0.00	2	3.52	4.76
NC						1		

*p < .05

The results show that on the behavioral mode of the fear response complex (BAT), CR is as effective as a standard technique control group (SD), but is superior to another cognitive treatment (VE) that contains all of the components of CR except for the element of re-attribution.

Verbal-Cognitive Measures. Two different subjective measures of fear behavior were included in the study in order to determine whether the snake fear each subject reported during the performance of approach behaviors differed from self-reported fear of snakes in a non-threatening setting. One self-report measure, the FT, was obtained during the behavioral avoidance test. The other measure, the SRIA questionnaire, was administered after the BAT in the waiting room of the laboratory; it was designed to provide a measure of subjective snake fear in a presumably non-threatening setting, since it did not involve the presence of a live snake.

Separate univariate analyses of variance were conducted on each verbal-cognitive measure of fear. The results of the analysis for the FT, summarized on Table 6, indicate a significant main effect of treatments at the .01 level ($F = 4.46$; $df = 4, 27$). Mean FT difference scores for each of the five conditions are presented in Table 7.

TABLE 6

Analysis of Variance for Fear Thermometer Difference Scores

Source	df	MS	F
Treatments	4	31.61	4.46**
Therapists	1	1.22	0.17
Treatments X Therapists	4	1.53	0.22
Error (within)	27	7.09	

**p < .01

TABLE 7

Difference Score Means and Standard Deviation for the Fear Thermometer

Treatment	N	Mean	SD
CR	8	5.13	2.17
SD	7	2.29	2.81
VE	8	4.00	2.78
AP	7	0.14	2.79
NC	7	1.00	1.73

In order to determine the extent to which treatment effects contributed to the total variability among FT change scores, a test of the strength of association, $\underline{w}^2$, was conducted. The results indicate that 30% of the total variability was due to treatments.

A Newman-Keuls comparison of treatment means was conducted on the FT difference scores in order to determine more specifically the differences among the five conditions on this measure. The results of the test, summarized on Table 8, show that subjects who received the CR treatment improved significantly more than subjects who received no treatment ($\underline{p} < .05$) and AP treatment ($\underline{p} < .05$). Systematic desensitization was ineffective in changing the verbal behavior of reporting oneself as fearful during the performance of approach behaviors as compared with the NC and AP control groups. Although the VE subjects did not improve relative to the NC subjects, these subjects did show significantly more improvement than the subjects in the AP control group ($\underline{p} < .05$). This finding emerged as a result of the fact that no-treatment led to greater reductions in the verbal report of fear (on the FT) than the AP treatment. However, the difference between the NC and AP conditions was not of sufficient magnitude to be statistically significant.

TABLE 8

Newman-Keuls Comparison of Treatment Means for Fear Thermometer Difference Scores

	CR	VE	SD	NC	AP	r	C.V. for = .05	C.V. for = .01
CR		1.13	2.84	4.13*	4.98*	5	4.07	5.00
VE			1.72	3.00	3.86	4	3.81	4.75
SD				1.29	2.14	3	3.45	4.41
NC					0.86	2	2.86	3.85
AP						1		

*p < .05

The results of the univariate analyses of variance on the SRIA change scores are summarized on Table 9. A significant treatment effect at the .01 level of significance ($F = 4.45$; $df = 4, 27$) indicated a differential effect of treatments. Mean SRIA difference scores are presented in Table 10. A test of the strength of association, w^2, indicated that 29% of the total variability among SRIA difference scores was due to the effect of treatments.

Following the univariate analysis on the SRIA measure a Newman-Keuls test was conducted. The results (summarized on Table 11) show that the CR treatment was the only one to produce marked improvement in comparison to no treatment ($p < .05$) and AP treatment ($p < .05$). Approaching significance ($p < .10$) was the improvement of VE over NC and AP. No difference was found between the AP and NC groups.

The finding on both verbal-cognitive measures indicate that the CR technique was as successful in reducing subjective anxiety in a situation involving the performance of approach behaviors as it was in a situation that did not involve the presence of a live snake. CR was the only treatment that produced significant therapeutic changes in self-reported fear as compared to the no-treatment control group. However, on the FT measure, VE subjects demonstrated significantly more improvement than AP subjects, and on the SRIA

TABLE 9

Analysis of Variance for Difference Scores on the Stimulus-Response Inventory of Anxiousness

Source	df	MS	F
Treatments	4	2980.46	4.45**
Therapists	1	680.20	1.02
Treatments X Therapists	4	241.44	0.36
Error (within)	27	669.39	

**p < .01

TABLE 10

Difference Score Means and Standard Deviations for the Stimulus-Response Inventory of Anxiousness

Treatments	N	Mean	SD
CR	8	42.00	24.18
SD	7	23.00	29.28
VE	8	30.88	25.19
AP	7	-1.57	24.08
NC	7	-5.43	20.91

TABLE 11

Newman-Keuls Comparison of Treatment Means for Stimulus-Response Inventory of Anxiousness Difference Scores

	CR	VE	SD	AP	NC	r	C.V. for = .05	C.V. for = .01
CR		11.12	19.00	43.57*	47.43*	5	39.36	48.70
VE			7.88	32.45	36.31	4	36.88	46.22
SD				24.57	28.43	3	33.45	42.86
AP					3.86	2	27.73	37.45
NC						1		

*p < .05

measure, the improvement of the VE subjects did approach significance over the improvement of NC and AP subjects. These findings indicate that (1) the process of verbal extinction does have a facilitative effect in producing changes in self-reported fear behavior, and (2) the effect produced by the process of verbal extinction is not as powerful as the effect produced by a combination of the processes of verbal extinction and re-attribution that are present in the CR procedure.

Heart Rate. Table 12 presents a summary of the analysis of variance for the heart rate fear measure. Due to the large amount of within-group variability among the difference scores, there was no significant treatment effect. Mean heart rate difference scores are presented in Table 13. In order to determine the extent to which treatment effects contributed to the total variability among the difference scores, the $\underline{w}^2$ statistic was calculated. The results indicated that 0% of the total variability was attributable to the effect of treatments.

Summary of Treatment Effects. Figure 1 shows the percent improvement (difference score divided by pre-test score) demonstrated by the subjects in each of the treatment conditions for the four dependent measures. Because the scores on the four dependent variables have different

TABLE 12

Analysis of Variance for Heart Rate Difference Scores

Source	df	MS	F
Treatments	4	161.29	0.68
Therapists	1	10.03	0.04
Treatments X Therapists	4	320.29	1.35
Error (within)	27	237.26	

TABLE 13

Difference Score Means and Standard Deviations for Heart Rate

Treatment	N	Mean	SD
CR	8	14.25	21.99
SD	7	5.71	5.31
VE	8	9.25	17.73
AP	7	5.29	9.38
NC	7	1.43	15.99

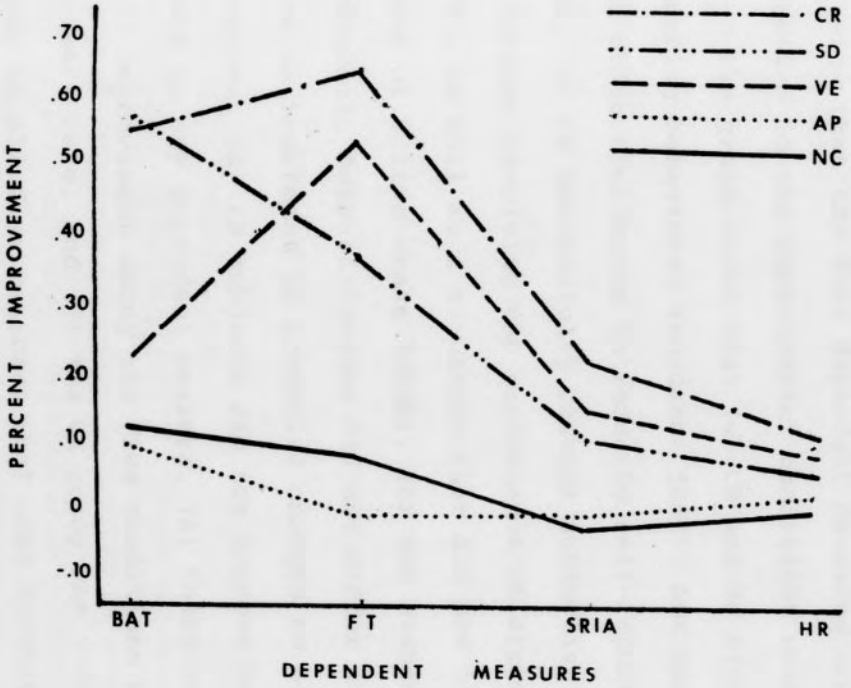

Figure 1. Percent Improvement Demonstrated by Each of the Treatment Conditions on the Four Dependent Measures.

ranges, there appears to be less variability among the SRIA and heart rate percent improvement scores than among the BAT and FT percent improvement scores. These differences in variability are the result of the transformation conducted on the data (percent improvement). The reader is therefore cautioned against using the graph to draw the conclusion that the four dependent measures are differentially reactive to the experimental conditions used in this study.

The graph shows that (a) CR was as effective as SD in reducing behavioral avoidance (BAT), but was superior to all other treatments in reducing self-reported fear behavior, (b) CR successfully reduced subjective anxiety in a situation involving the performance of approach behaviors (FT), as well as a situation that did not involve the presence of a live snake (SRIA), (c) the standard technique of systematic desensitization did not differ significantly from no treatment in producing changes on both self-report measures, (d) AP subjects did not improve more than NC subjects on any dependent measure, (e) there was no differential improvement among the five conditions on the measure of heart rate, and (f) the VE group was inferior to the CR group on all fear measures that were reactive to treatment effects. The last finding indicates that re-attribution is a critical component of the CR technique.

Therapist Effects

The modified 5x2 factorial analyses of variance (treatments X therapists) performed on each of the dependent measures (BAT, FT, SRIA, and heart rate) yielded no significant therapist, or treatments X therapists interaction effects. The calculation of the strength of association, $\underline{w}^2$, revealed that the within-group variability (error) was greater than the variability accountable to a combination of the therapist and interaction (therapists X treatments) effects on the FT, SRIA, and heart rate measures ($\underline{w}^2_s$ = .00). On the BAT, the combined therapist and interaction effects accounted for 3.8% of the total variability among difference scores. Thus, the particular therapist did not have a significant influence upon the subjects' improvement. In the multivariate analysis of variance of treatment effects, the groups were therefore pooled across the two therapists.

Analysis of Expectancies

Subject Expectancies. Three times during the course of the study, the subjects (excluding NC subjects) were asked to evaluate their expectations of benefit from treatment. Ratings were made on a 5-point scale ranging from "not likely to improve" (point 1) to "definitely will improve" (point 5). The first prediction of improvement was

made during the pre-treatment assessment, before subjects were assigned to one of the five experimental conditions. The second rating was made immediately after the first session and was designed to evaluate the effects of the different treatment rationales on subjects' expectations of benefit. The final estimate was made at the conclusion of the last session in order to determine whether the subjects' exposure to different treatments affected their predictions of improvement.

Separate one-way analyses of variance were performed on the subjects' expectation scores for each of the three ratings. A repeated measures design was not used in this analysis because of subject attrition. The results of the three analyses are presented in Table 14. No significant treatment effect was obtained on the analyses of pre-treatment ratings. Thus, subjects in each of the treatment groups did not differ in their predictions of improvement before they were given specific information regarding the type of treatment they were to receive. The analysis of the second set of expectation ratings also did not yield a significant treatment effect, indicating that predictions of improvement were not affected by the type of treatment rationale presented to the subjects after the first session. However, the analysis of variance on expectation ratings made after the last treatment session produced a

TABLE 14

Analysis of Variance on Subject Expectancy Scores

Source	df	MS	F
Before Treatment			
Treatment	3	1.30	0.77
Error (within)	26	1.68	
After Session #1			
Treatment	3	2.12	1.31
Error (within)	26	1.68	
After Session #6			
Treatment	3	8.07	9.72**
Error (within)	26	.83	

**p < .01

significant main effect of treatments at the .01 level ($F = 9.72$; $df = 3, 26$). Thus, the particular treatment to which the subjects were exposed had a significant influence on their expectations of benefit. A Newman-Keuls post-hoc comparison of treatment means (presented in Table 15) indicated that subjects in the CR condition rated themselves more likely to improve than subjects in the VE and AP conditions ($p < .01$, for both comparisons). Similarly, SD subjects expected to benefit more than VE subjects ($p < .05$) and AP subjects ($p < .01$).

The fact that the particular treatments to which the subjects were exposed influenced their expectations of benefit after the last session, but not on the other two occasions, suggests that the subjects may have become increasingly cognizant of changes (or absence of changes) that were occurring as treatment progressed. It can also be argued that the subjects' exposure to the behavioral point of view in their course work contributed to reduced expectations of treatment benefit in the AP group. However, this explanation seems unlikely since efforts were made throughout AP treatment to disavow behavior therapy. Since there were no differences among the conditions on predictions of improvement following the explanations of the various treatment procedures and rationales, all of the

TABLE 15

Newman-Keuls Comparison of Treatment Means for Subject Expectancy Scores

	SD	CR	VE	AP	r	C.V. for = .05	C.V. for = .01
SD		0.10	1.47*	2.14**	4	1.30	1.63
CR			1.37**	2.04**	3	1.18	1.51
VE				0.67	2	.97	1.32
AP					1		

*p < .05
**p < .01

groups can be viewed as equivalent in their effects upon the non-specific therapy factors of expectancy and demand.

During the last treatment session, subjects evaluated therapist competence and likeability on a 5-point scale. Each of the 30 treatment subjects rated their therapists at either the 4- or 5-point level on both measures. Thus, the ratings did not correlate with the difference scores obtained on any fear measure.

Therapist Expectancies. Before treatment, each of the therapists rank ordered the four treatment conditions according to their expectancy of over-all treatment outcome. Since the two therapists had not yet had contact with the treatment subjects, these ratings were based on theoretical criteria; that is, they were based on the therapists' understanding of the psychological principles operating in each of the treatments. No differences were found in the ratings of the two therapists. SD was ranked as the treatment most likely to obtain the greatest reductions in fear behavior. CR was ranked second, followed by VE and AP. Thus, neither of the therapists showed a bias in favor of CR as the most powerful treatment procedure.

CHAPTER IV

DISCUSSION

The results of the present study indicate that the cognitive restructuring treatment was as effective as systematic desensitization in reducing behavioral avoidance, but more effective than the standard desensitization technique in reducing subjective anxiety. Since cognitive restructuring produced significantly greater improvement on both verbal-cognitive dependent measures (FT and SRIA) than all other treatment and control conditions, the superiority of this technique in treating the cognitive mode of the fear response complex receives support from the data. This finding is consistent with previous research indicating the maladaptive verbal-cognitive behavior is most easily modified by therapies that attempt to directly influence one's self-verbalizations (Ellis, 1962; Meichenbaum, 1971d; Trexler & Karst, 1972). The results also corroborate the D'Zurilla et al. (1973) finding that cognitive restructuring is an efficient and effective way to change subjective fear behavior.

The fact that systematic desensitization failed to effect changes on the two verbal-cognitive fear measures indicates that the behavior of reporting oneself as anxious was not modified by this procedure. However,

desensitization did have a strong effect in reducing behavioral avoidance. These findings support the viewpoints that (1) different behavioral techniques have a differential effect on each of the three response sub-systems constituting fear behavior (overt-motor, cognitive, somatic) (Lang, 1968), and (2) systematic desensitization should be supplemented by procedures that directly deal with the subjective component of the fear response complex (Johnson & Sechrest, 1968; Meichenbaum, 1971d, 1972).

The failure of the five experimental conditions to produce differential improvement on the heart rate measure may be explained several ways. The heart rate score was computed by dividing the number of heart beats for each BAT item by the number of seconds required for the item's completion, and multiplying by 60. Since the duration of time required for the completion of each BAT item was measured by a manual event recorder controlled by the pre-test examiner, it is possible that experimenter error may have contributed to inaccurate scores. Thus, one explanation for the failure to obtain a heart rate effect involves the possibility of an inadequate measurement of the dependent variable.

Another explanation is theoretical in nature, and involves the question of the appropriateness of the use of heart rate as an index of the conditioned emotional

response. Rescorla and Solomon (1967) and Black and de Toledo (1972) have provided data showing that the classical conditioning procedure does not have an effect on heart rate, and that the heart rate response is influenced primarily by central neural states involved in skeletal movement. If increases in heart rate are not associated with increases in emotion (i.e., anxiety), as these authors suggest, then it is inappropriate to use heart rate as a measure of conditioned fear. Furthermore, even if the heart rate response does reflect fear behavior, as Lang, Melamed, and Hart (1970) suggest, it is incumbent upon the researcher to control for general activity level in order to obtain a more valid index of conditioned fear. Although the Levis apparatus used in the pre- and post-tests required a minimimum of skeletal movement for the performance of approach behaviors, no controls were used to assess the contribution of motor activity to increases in the heart rate response.

Yet another plausible explanation is that the five experimental conditions used in the present study do not produce differential improvement in heart rate. This interpretation of the failure to obtain a significant treatment effect implies that the particular therapies used in this investigation do not yield therapeutic changes on the physiological component of the fear response

complex. In order to be certain that this is a warranted conclusion, multiple physiological measures must be used in future research on the outcome of the treatment procedures used in this study.

Heart rate was the only dependent variable that failed to produce a significant treatment effect; significant differences between groups were obtained on the BAT, FT, and SRIA measures. A critical comparison in the present study involved the analysis of differential improvement produced by the CR and VE techniques. The subjects in the cognitive restructuring group displayed more improvement than verbal extinction subjects on the behavioral avoidance fear measure (BAT). On the verbal-cognitive measures (FT and SRIA), however, the superiority of CR over VE is less pronounced. On the SRIA, comparisons of VE and NC and VE and AP approached significance with $p < .10$. On the FT, VE produced significantly greater reductions in self-reported fear behavior than did AP, but it did not produce changes of sufficient magnitude to be significantly superior to NC. This last finding emerged as a result of the fact that NC subjects improved more on the FT than did AP subjects. The data therefore indicate that verbal extinction has a facilitative effect on reducing verbal cognitive fear behavior, but the effect is not powerful enough to yield significant improvement over untreated control group levels. On the

other hand, the cognitive restructuring treatment yielded consistent and superior improvement compared to the AP and NC control groups on both subjective fear measures. Figure 1 shows that CR produces greater changes than VE on the dependent measures representing the cognitive fear dimension (FT and SRIA).

Both the CR and VE treatments were conducted in groups where the subjects described anxiety-provoking experiences and engaged in prolonged verbal exposure to past threatening situations. Since the length of the discussions for the two groups were yoked, both treatments were equivalent with respect to the element of verbal extinction. The element that distinguished between the two procedures is the process of perceptual relearning, or re-attribution, that was included in the cognitive restructuring procedure but not in the verbal extinction procedure. The superiority of CR in comparison to VE in reducing subjective and overt motor fear behavior indicates that the element of re-attribution contributes to the therapeutic effectiveness of the cognitive restructuring technique.

Although the therapeutic value of re-attribution _per se_ has not been previously investigated, a number of authors have suggested that the process of relabeling anxiety-eliciting stimuli can contribute to reduced fear behavior. Goldfried _et al_. (in press) argue that the extent to which

an individual tends to label stimuli in positive or negative ways will determine his emotional response to the stimuli. They therefore propose that the primary goal of therapy is to produce modifications in the label; that is, to modify the client's self-verbalizations. Dollard and Miller (1950), in their discussion of cognitive factors in therapy, suggest that fear behavior is often elicited by the label attached to a stimulus rather than by the objective stimulus complex. Like Goldfried et al. (in press), Dollard and Miller recommend that therapy focus on modifications of the inappropriate label.

Cognitive restructuring attempts to reduce maladaptive behavior via a relabeling-re-attribution process. By providing subjects with an explanation of the etiology of their fears, they learn to re-attribute their fear behavior from the phobic stimulus complex to their irrational set of beliefs (self-statements). The anxiety-provoking stimuli are consequently relabeled more appropriately, and the negative emotional valance attached to the stimuli is reduced.

Perhaps most interesting in this study was the finding that cognitive restructuring, a semantic therapy, produced a strong effect on avoidance behavior. The correlated changes in cognitive and overt-motor behavior resulting from CR may be interpreted in two ways. According to some contemporary attitude theories (i.e., Festinger, 1957;

Osgood & Tannenbaum, 1955), there is a drive to maintain consistency between motoric and verbal-cognitive behavior. A modification in either of the two response systems will therefore disrupt equilibrium, and create a motivational state that instigates an individual to make appropriate adjustments. According to this interpretation, a change in the subjective component of the fear response complex produced by a particular treatment will generate incongruity. This incongruity, in turn, provides an internal stimulus for behavioral changes that coincide with the newly acquired cognitions. The dissonance explanation for the concurrent changes in overt and covert behavior produced by CR is contradicted by research conducted by Lang (1968) on the "triple response mode." Lang has shown that the correlations between each of the response channels of fear behavior (cognitive, motoric, somatic) are quite low. Another difficulty with the dissonance view is that there exists no independent measure of the degree of incongruity produced by disparate changes in various response modalities.

A more parsimonious explanation for the strong effect of CR on avoidance behavior is that the relabeling-reattribution process functions to modify internally generated self-statements, and leads the individual to emit those self-sentences that cue appropriate approach

responses. According to this interpretation, newly acquired self-verbalizations function as discriminative stimuli for motor behavior.

This view is supported empirically by a series of investigations showing that explicit attempts to teach covert self-instructions have a direct effect on regulating motor output (Meichenbaum, 1971d). Outcome studies of a number of behaviorally-oriented cognitive therapies including rational-emotive therapy (Trexler & Karst, 1972), and cognitive modification therapy (Meichenbaum, 1971d, 1972; Meichenbaum, Gilmore & Fedoravicius, 1971) indicate that direct attempts to modify covert fear behavior (via modifying specific self-statements) will produce changes in overt fear behavior. The demonstrated effectiveness of these therapies also indicates that several different procedures (i.e., modeling, anxiety relief) may be employed to teach clients to speak to themselves in more appropriate ways.

Lang (1969) argues that separate treatments should be designed to shape and control each of the response subsystems constituting fear behavior. His conclusion that therapeutic changes in one response modality are independent of changes in the other two is based on the study of the outcome of desensitization, a technique that repeatedly has been shown to be mode specific (Davison, 1968; Johnson &

Sechrest, 1968; Meichenbaum, 1971d; Paul, 1966). Research on the effects of various cognitive modification techniques on the other hand, reveal consistent and high relationships between changes in the verbal-cognitive and overt-motor dimensions of fear behavior. Thus, therapies that attempt to directly modify the subjective component of the fear response complex produce corresponding changes in overt responding.

Although the CR procedure functions to modify both the cognitive and the motoric components of the "triple response mode," the changes in overt behavior are likely to disappear unless they are maintained by adequate consequences. Cognitive restructuring is concerned primarily with the manipulation of covert antecedent events, and their ability to affect target behaviors. Since behavior is so powerfully maintained by consequent events, the induced cognitive change is likely to exert a weak and transitory influence on motor performance if environmental contingencies do not support the newly acquired motor response. In order to effect enduring change in overt behavior, the cognitive restructuring technique should be supported by a procedure that guarantees positive response consequences.

Cognitive restructuring may be used in the treatment of a wide variety of clinical problems in addition to fear

behavior. Several authors (Ellis, 1962; Goldfried et al., in press; Meichenbaum, 1971d; Velton, 1968) have pointed out that an individual's maladaptive emotional reaction (e.g., anxiety, depression) to a particular situation is frequently a function of irrational, internalized sentences attached to the situation, rather than the objective stimulus properties of the situation itself. Since the primary goal of cognitive restructuring is to have the client modify these antecedent self-verbalizations via relabeling the stimuli more appropriately, the technique can be valuable in treating all behaviors that are elicited by covert discriminative stimuli.

One possible limitation of cognitive restructuring involves the restriction it imposes on the clinical population that is likely to benefit from this approach. CR should be attempted only with those individuals who possess a fairly complex repertoire of verbal skills. The technique requires the client to understand various theoretical accounts of the etiology of his fear behavior, and to comprehend the basic irrational and self-defeating ideas underlying his anxiety. Since the success of CR is related to the regulatory function of one's self-statements, it will have limited success on clients who have difficulty in appropriately relabeling the anxiety-eliciting stimuli.

It will also be likely to fail on clients whose inner speech manifests poor control over their behavioral output.

Cognitive restructuring is a relatively new procedure. Controlled studies investigating the parameters that influence its effectiveness are needed. Two factors which have been mentioned as possible variables affecting the outcome of the technique include (1) the complexity of the individual client's verbal repertoire, and (2) the extent to which the environment provides adequate consequent conditions to maintain changes initiated by self-verbalizations. Future research with cognitive restructuring should focus on these areas.

This experiment has shown (1) that re-attribution is a critical component of the cognitive restructuring technique, and (2) that cognitive restructuring is effective in treating both the verbal-cognitive and overt-motor dimensions of fear behavior.

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Appendix A

Fear Survey Schedule

Name _____ Local Address _____

Local Telephone _____ Alternative Telephone _____

Sex _____ Class _____

The items in this questionnaire refer to things and experiences that may cause unpleasant feelings. Please check the column that best describes how much you are disturbed by it nowadays.

	Not at all	A little	A fair amount	Much	Very much
Speaking in Public					
Snakes					
People in Authority					
Dogs					
Bats					
Spiders					

Appendix B

Snake Information

Participant Information Sheet

PLEASE READ

Dear Participant:

You are being asked to participate in a study of fear reduction. A first requirement of such a study is an accurate measure of a person's fear. The examiners will be attempting to get such a measure by actively encouraging you to perform fearful items in a prearranged test situation. Please cooperate with them.

The test involves a snake. His name is Balboa. He is a non-poisonous boa constrictor of approximately five feet in length. He has been used in many such experiments and is quite harmless. Like most snakes you will see him flick his tongue out. This is not any indication of danger. Like most snakes Balboa has poor eyesight. He uses his tongue as a scent receptor to explore his environment. In touching Balboa, you will find that he is not wet or slimy, rather he is dry and cool. His coolness is a result of the fact that he is not warm-blooded. Therefore his body temperature is room temperature and that is cooler than your body temperature. When you hold him, it is quite likely that he will coil around your arm. This is done purely for support. An animal of his length cannot be easily supported between two hands. Thank you for your cooperation.

Sincerely,

The Experimenters

Appendix C

Instructions Read to Subjects During Fear Assessments

"I am going to give you certain specific instructions to follow, and you should do exactly as you are instructed to do. Please do not ask any questions at this time. Simply follow my directions. You will be requested to perform a series of steps of increasing approach to a non-poisonous snake. First, I will describe the nature of the activities that you are to perform. Then, at the appearance of the red light directly in front of you, you will state your fear on a scale from one to ten, one being no fear and ten being terrified. Next to the red light is a switch that is presently in the down position. After the red light goes on, and after you have estimated your fear from one to ten, you will indicate your intention to complete the requested task by pushing the switch up. Once you have pushed the switch, you will be required to complete the step described to you.

"To repeat, the procedure is as follows: first, you will be told the nature of the step that you are to perform. Second, the red light will be illuminated. Third, you will estimate your fear as soon as you see the red light go on.

Appendix C (Continued)

Fourth, you will push the switch in the up position, at which point you will have committed yourself to performing the task. Do you have any questions?"

Appendix D

Behavioral Avoidance Test (BAT)

1) Sitting 9 feet from a caged snake.
2) Sitting 8 feet from a caged snake.
3) Sitting 7 feet from a caged snake.
4) Sitting 6 feet from a caged snake.
5) Sitting 5 feet from a caged snake.
6) Sitting 4 feet from a caged snake.
7) Sitting 3 feet from a caged snake.
8) Sitting 2 feet from a caged snake.
9) Sitting 1 foot from a caged snake.
10) Sitting directly before a caged snake.
11) Touching the cage with a gloved hand.
12) Touching the cage with a bare hand.
13) Lifting the lid of the cage.
14) Placing a gloved hand in the cage.
15) Placing an ungloved hand in the cage.
16) Touching the snake with a gloved hand.
17) Touching the snake with an ungloved hand.
18) Picking up the snake with two gloved hands for two seconds.
19) Picking up the snake with two bare hands for two seconds.
20) Holding the snake near chest with two gloved hands for 15 seconds.
21) Holding the snake near chest with two bare hands for 15 seconds.

Appendix E

Individual Data Sheet

Subject Examiner _____

	BAT			FT			HR			LAT		
	Pre	Po	Ch	Pre	Po	Ch	Pre	Po	Ch	Pre	Po	Ch
1	___	___	___	___	___	___	___	___	___	___	___	___
2	___	___	___	___	___	___	___	___	___	___	___	___
3	___	___	___	___	___	___	___	___	___	___	___	___
4	___	___	___	___	___	___	___	___	___	___	___	___
5	___	___	___	___	___	___	___	___	___	___	___	___
6	___	___	___	___	___	___	___	___	___	___	___	___
7	___	___	___	___	___	___	___	___	___	___	___	___

8 ... and so forth through item #21.

	SRIA			ANX. DIFF.		
	Pre	Po	Ch	Pre	Po	Ch
	___	___	___	___	___	___

Subject's Expectation:

Before _____ After session #1 _____

After session #6 _____

Therapist Likeability _____ Therapist Competence _____

Appendix F

Personal Reactions Questionnaire

Your name _____

Phone no. _____

Alternative phone no. _____

Local address _____

This packet consists of various questionnaires designed to further assess your reactions to anxiety-provoking situations. This information will be kept confidential, so please be as honest as possible in describing your reactions.

Appendix F (Continued)

Personal Reactions Questionnaire 1 Name _____

Please circle the appropriate number from one to five describing your reaction to the situation at the top of each section.

Here is an example:

You are about to go on a roller coaster.

Heart beats faster		1	2	3	4	5
	Not at all					Much faster

If you heart beats much faster in this situation, you would circle alternative 5; if your heart beats somewhat faster, you would circle either alternative 2, 3, or 4 depending on how much faster; if in this situation your heart does not beat faster at all, you would circle alternative 1.

A. Thinking about a snake

1.	Heart beats faster		1	2	3	4	5
		Not at all					Much faster
2.	Get an "uneasy feeling"		1	2	3	4	5
		None					Very strongly
3.	Emotions disrupt action		1	2	3	4	5
		Not at all					Very disruptive
4.	Feel exhilarated and thrilled		1	2	3	4	5
		Very much					Not at all
5.	Want to avoid situation		1	2	3	4	5
		Not at all					Very much

Appendix F (Continued)

6.	Perspire	Not at all	1	2	3	4	5 Perspire much
7.	Need to urinate frequently	Not at all	1	2	3	4	5 Very frequently
8.	Enjoy the challenge	Enjoy much	1	2	3	4	5 Not at all
9.	Mouth gets dry	Not at all	1	2	3	4	5 Very dry
10.	Become immobilized	Not at all	1	2	3	4	5 Completely
11.	Get full feeling in stomach	None	1	2	3	4	5 Very full
12.	Seek experiences like this	Very much	1	2	3	4	5 Not at all
13.	Have loose bowels	None	1	2	3	4	5 Very much
14.	Experience nausea	Not at all	1	2	3	4	5 Much nausea

In addition to "thinking about a snake," the subjects responded to three other situations: "looking at a caged snake at a distance of 10 feet," "sitting directly in front of a caged snake," and "holding a snake with bare hands."

Appendix F (Continued)

Personal Experiences Questionnaire 2 Name _____

1. For how many years have you have these negative feelings about snakes?

2. Name your close friends and relatives that you know are also afraid of snakes.

3. List any direct experiences which you have had with real snakes. Rate your negative feelings during each of these experiences.

	1	2	3	4	5	
(no neg. feelings)						(intense neg. feelings)

4. Describe any other particularly vivid memories about snakes (e.g., movies, conversations, dreams).

5. Why do you think you are afraid of snakes?

Appendix F (Continued)

6. Given that you selected to participate in this research-treatment program, please estimate the likelihood that your treatment program will considerably lessen your fear of snakes.

   (not likely) 1 2 3 4 5 (extreme likely)

7. If you are selected for this research-treatment program, are you still willing as you have previously indicated to commit yourself for a maximum of seven additional sessions? You are giving yourself not only the opportunity for extra course credit, but also for treatment benefits.

   yes, I am making this committment ____
   no, I will not reaffirm my committment ____

8. If you are willing to participate, please indicate below the times that is is absolutely <u>impossible</u> for to meet for the treatment sessions:

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
9							
10							
11							
12							
1							
2							
3							
4							
5							
6							
7							
8							
9							

Appendix G

Subject Expectation Form

Name _____ Therapist _____

Please estimate the likelihood that your treatment program will (has) considerably lessen(ed) your fear of snakes.

1	2	3	4	5
very little				extremely likely

Appendix H

Desensitization Hierarchy Item Pool

1) Sitting 9 feet from a caged snake.
2) Sitting 8 feet from a caged snake.
3) Sitting 7 feet from a caged snake.
4) Sitting 6 feet from a caged snake.
5) Sitting 5 feet from a caged snake.
6) Sitting 4 feet from a caged snake.
7) Sitting 3 feet from a caged snake.
8) Sitting 2 feet from a caged snake.
9) Sitting 1 foot from a caged snake.
10) Sitting directly before a caged snake.
11) Touching the cage with a gloved hand.
12) Touching the cage with a bare hand.
13) Lifting the lid of the cage.
14) Placing a gloved hand in the cage.
15) Placing an ungloved hand in the cage.
16) Touching the snake with a gloved hand.
17) Touching the snake with an ungloved hand.
18) Picking up the snake with two gloved hands for two seconds.
19) Picking up the snake with two bare hands for two seconds.
20) Holding the snake near chest with two gloved hands for 15 seconds.

Appendix H (Continued)

21) Holding the snake near chest with two bare hands for 15 seconds.

22) Thinking about a snake.

23) Reading about a snake.

24) Watching a movie about snakes.

25) Seeing a snake on the road while driving.

26) Encountering a snake at a distance of 10 feet in the woods.

27) Seeing a snake directly before you in the woods.

28) Opening a door and viewing your friend's pet snake in his cage.

29) Lifting a rock and seeing a snake.

30) Seeing a snake beneath your sleeping bag.

31) Visiting the snake house at the zoo.

32) Hearing your friend describe his pet snake.

33) Seeing a snake hanging from a tree at a distance of five feet.

34) Encountering a snake at a distance of five feet in the woods.

35) Watching your friend handle his pet snake.

Appendix I

Treatment Manuals

I-1

Cognitive Restructuring

The treatment labelled here as "Cognitive Restructuring" is modeled after the procedure used by D'Zurilla, Wilson and Nelson (1973). It is a cognitive modification technique that attempts to produce therapeutic changes in fear behavior via modifying a client's self-statements. The subjects are provided with an understanding of the etiology of their fears in terms of a learning theory rationale. The focus is on an explanation and understanding of the development of the fear geared to the specific past learning experiences of the members of the group. Treatment involves three major parts: (1) a general explanation of the rationale and course of treatment, (2) recall training, and (3) cognitive restructuring, per se.

Explanation of the Rationale and Course of Treatment

It is important that the subjects understand and accept the treatment process and its rationale. It should be explained to the subjects that their fear is a result of previous learning experiences, and that the treatment is a process of relearning through understanding. The following may be used as a guide for the explanatory statement:

I-1 (Continued)

"Basically, your fear is a result of learning experiences in your past life which have caused you to react with strong anxiety to a situation (i.e., snakes) which actually presents no real danger to you. The anxiety occurs because in your past life you had learned to perceive (i.e., interpret, label, understand) situations involving snakes as threatening or aversive. Although you now realize that there is no real threat involved, your old perceptual response tendencies are still strong in your repertoire of responses, and they automatically occur whenever you come in contact with the feared object, causing you to feel anxious and upset. When such anxiety occurs as a response to real threats or dangers, it can be a very useful and adaptive warning signal. However, when it is inappropriate, it can interfere with your life goals and productivity.

"The treatment program we will be using is called Cognitive Restructuring. It is a form of behavioral therapy that involves a process of discovering and understanding our early fearful experiences related to snakes. The idea is to have each individual remember and discover how her specific fear of snakes began. By remembering and understanding how our fears came about, you will learn new

I-1 (Continued)

ways of perceiving these experiences which are less threatening than the old perceptual responses which still exist today. As the new, non-threatening perceptions replace the frightening ones, you will become less and less disturbed about snakes.

"Generally it is difficult to remember incidents from your childhood, especially aversive ones. Therefore, we will spend the next two sessions practicing recalling detailed scenes from the past that you'll be most likely to remember.

"We've used Cognitive Restructuring on many different types of anxiety problems in therapy, many of them similar to yours, with excellent results. The specific procedures will become clear as we get into them."

Training in Recall

This component of the procedure is designed to improve the subjects' recall of details. Therefore, the therapist must ensure that each subject can imagine (recall) situations clearly and must focus attention on many specifics of the reported memory.

Memories which the subjects try to recall should be neutral in the sense that they are not related to snakes

I-1 (Continued)

and are not particularly traumatic. At least one scene should be described by each individual during each of the first two sessions. Group members should be actively encouraged to talk, to recall their own memories, and to comment on the memories of others. Because the objective of recall training is the discrimination of details, the memory which each subject describes should be checked for vividness of detail.

Cognitive Restructuring

At the beginning of each Cognitive Restructuring session (3-6), the therapist is to spend 15 minutes outlining one of the four following theoretical accounts of the origin of unrealistic fears: (1) conditioning and generalization of anxiety reactions (Watson & Raynor, 1920), (2) modeling and imitative learning (Bandura & Walters, 1963), (3) cognitive relabeling (Schacter & Singer, 1962), and (4) perceptual relearning (Hebb, 1946). At the end of these presentations, the therapist must emphasize that an understanding of the origin of their fears will aid them in learning new ways of perceiving their early fearful experiences. Following each of the 15-minute presentations, each of the group members is to vividly

I-1 (Continued)

describe one of their own experiences during each session. The discussion for each recollection should last for 10 minutes. As the incidents and experiences are described, the therapist should explain how the learning principle for that particular session might have been operating to produce treatening attitudes and perceptions and strong reactions regarding the various aspects of the snake fear.

Time Schedule

An attempt should be made to adhere as closely as possible to the following time schedule:

Session #1	(1)	Introduction and explanation of the rationale and course of treatment (15 minutes)
	(2)	Recall training (35 minutes)
	(3)	Discussion (10 minutes)
Session #2	(1)	Recall Training (35 minutes)
	(2)	Discussion (10 minutes)
	(3)	Writing of snake experiences (15 minutes)
Sessions #3-6	(1)	Cognitive Restructuring (15-minute presentation of theoretical account of fear etiology and 40-minute discussion)
	(2)	Discussion (5 minutes)

I-2

Verbal Extinction

The treatment outlined in this manual is designed to assess the possible contribution of prolonged verbalizations of snake-relevant stimuli in the cognitive restructuring group. By determining the degree of fear reduction through the mechanism of verbal extinction, the therapeutic effect of cognitive restructuring, or "perceptual learning," per se, may be more adequately evaluated. This procedure, therefore, includes all of the elements of the CR procedure except for relabeling. This particular form of therapy attempts to produce therapeutic changes in fear behavior by engaging the subjects in a group discussion of snake-related experiences. The group members will not be provided with an understanding of the etiology of their fears; the discussion is designed simply to function as a means of exposing the subjects to aversive stimuli. The therapist shall guide the discussion away from any tendency toward relabeling or expressing more rational attitudes towards snakes. The treatment involves three major parts: (1) a general explanation of the rationale and course of treatment, (2) recall training, and (3) snake-relevant discussion. The third and final component involves the identification of specific detailed experiences related to the fear.

I-2 (Continued)

Explanation of the Rationale and Course of Treatment

It is important that the subjects understand and accept the treatment process and its rationale. The following points must be made:

(1) Therapy is not concerned with the etiology of a particular fear; it is more profitable to concern ourselves with effective ways of eliminating unwanted (not "irrational") fear.

(2) One technique that has had great success in eliminating unwanted fear is known as "Confrontation Therapy." This method operates by means of an important and well established principle. The principle states that if a person repeatedly verbalizes the details of an anxiety-provoking situation or event, the anxiety he experiences will gradually weaken until the point is reached where the situation is no longer disturbing.

(3) A particular fear may be reduced by remembering and verbally re-experiencing past experiences involving the fear. By bringing past memories concerning snakes under immediate consideration, the aversive nature of the stimuli, and their emotional distress, may be eliminated.

I-2 (Continued)

(4) A very important aspect of this treatment involves direct confrontation of the anxiety in terms of thinking about, reliving, and repeatedly verbalizing previous snake-related experiences. This repeated and prolonged confrontation results in the gradual dimunition of anxiety from session to session.

(5) Repeated and prolonged verbal confrontation permits us to become masters of our fears, rather than victims of fears.

(6) A crucial aspect of confrontation therapy conducted in a group is that through group interaction, we can help each other seek out relevant past experiences. By having one member relate details of his personal circumstances, this often triggers previously forgotten, or difficult to recall, memories in others. A group discussion therefore offers definite advantages.

(7) At all times you should feel free to ask questions of all other members, comment on their experiences, and try to relate your experiences to theirs.

(8) Generally, it is difficult to remember incidents from your childhood, expecially aversive ones.

I-2 Continued

Therefore, we will spend the next two sessions practicing recalling scenes from your childhood that you'll be most likely to remember. We will try to recall these scenes in great detail so that when we progress to recalling incidents related to your fear of snakes, you can also vividly recall the details of these incidents.

(9) We've used these procedures on many different types of anxiety problems in therapy, many of them very similar to yours, with excellent results.

Training in Recall

Same as recall training for Cognitive Restructuring.

Snake-Relevant Discussion

The first 20 minutes of the remaining sessions (3-6) must be devoted to further neutral recall training. The group members should be told that such an activity is a prerequisite for the vivid recollection of relevant memories later on in the session.

Following this initial 20-minute period, each of the subjects is to describe one of their own experiences during each session. The discussion for each recollection shall last for 10 minutes.

I-2 (Continued)

The role of the therapist should be minimal; group members should be encouraged to talk freely, to recall their memories, and to comment on the memories of others. At the beginning of each session, attention should be focused on the group members who seem to be the most comfortable when speaking about their personal experiences.

Each subject should be instructed to recall at least one experience, which may be related to the phobia during each session. If the subject has any difficulty in recalling any such incidences, the therapist may make suggestions from the Personal Reactions Questionnaire or from the experiences listed in Session 2. In addition, the therapist may provide the following cues: vicarious experiences with snakes, i.e., TV or movies; outdoor experiences with snakes, i.e., camping; visits to the zoo or the pet shop. The therapist may also use his own experiences and suggest others (i.e., from anxiety hierarchy of SD treatment) to try to stimulate the recall of similar experiences.

Time Schedule

An attempt should be made to adhere as closely as possible to the following time schedule:

I-2 (Continued)

Session #1	(1)	Introduction and explanation for the rationale and course of treatment (15 minutes)
	(2)	Recall training (35 minutes)
	(3)	Discussion (10 minutes)
Session #2	(1)	Recall training (35 minutes)
	(2)	Discussion (10 minutes)
	(3)	Writing of snake experiences (15 minutes)
Sessions #3-6	(1)	Recall training (20 minutes)
	(2)	Snake relevant discussion (40 minutes)

I-3

Systematic Desensitization

The desensitization technique described in this manual is basically the same procedure described by D'Zurilla (1969) with several minor additions and modifications. The treatment contains the following components: (1) explanation of the rationale and course of treatment, (2) construction of the anxiety hierarchy, (3) training in progressive relaxation, and (4) desensitization proper.

Explanation of the Rationale and Course of Treatment

It is important that the subjects understand the treatment process and its rationale. It should be pointed out to the subjects that their fear is a result of previous learning experiences and that the treatment is a process of relearning. Several examples of the conditioning and generalization of anxiety reactions to previously neutral cues should be presented. The following may be used as a guide for the remainder of the explanatory statement:

"Since we are able to reconstruct past situations or events in our minds in the form of images, we can work with your anxiety reactions right here by having you imagine the situations or circumstances that make you anxious. The technique which we will use to reduce your anxiety is called desensitization. This method employs two main

I-3 (Continued)

processes; one is deep relaxation and the other is called counter-conditioning. For inducing relaxation, we will use a method which can be learned rather quickly and which will allow you to become more deeply relaxed than ever before. The main advantage of deep relaxation, of course, is that the muscle systems of the body cannot be both tense and relaxed at the same time; therefore, once you have learned to relax deeply, you can use this method to reduce the anxiety and tenseness which occurs when you feel 'afraid.'

"Because relaxation cannot be used in many life situations, we will combine the relaxation method with the procedure of counterconditioning, by which relaxation is learned as a response to fear-provoking situations. First we will identify the situations which make you progressively more afraid, and we will construct a hierarchy from least to most disturbing situations. Then, when you have learned the relaxation method, you will repeatedly imagine the various events from the hierarchy while under relaxation. By doing this, those events will gradually become desensitized such that they no longer make you anxious or afraid.

I-3 (Continued)

Construction of Anxiety Hierarchy

A pool of potential hierarchy items is prepared prior to the first session. The pool includes all of the items from the BAT and several that will be selected from the Personal Reactions Questionnaire. Each item is written on an individual index card. The subjects are to spend a portion of the second session arranging their own hierarchies. A group hierarchy will be constructed by averaging the four hierarchies, and selecting 16 items by group discussion.

Training in Progressive Relaxation

The relaxation method is modeled directly after the method employed on a tape recording by Bernstein and Borkovec (1973).

Desensitization Proper

Prior to working through the anxiety hierarchy under relaxation, the subjects' imagery should be tested. A neutral scene should be used for this purpose.

Before inducing relaxation during the first desensitization session, the subjects should be instructed to raise their index finger off the arm of the chair if at any point during the session anyone feels the slightest bit of tension or anxiety.

I-3 (Continued)

The subjects are to visualize the item for 10 seconds after which they shall be instructed to "stop imagining the scene and continue to relax." They should then be asked to signal if any tension was experienced during the session. If no one signals, the therapist should present the first item one more time in the same manner. If no anxiety is signaled during the second exposure, go on to the next item. Follow this procedure throughout the hierarchy if the subjects do not signal anxiety.

If a subject does signal anxiety, or the therapist detects anxiety, all subjects are immediately instructed to "stop imagining and continue to relax." Suggestions of relaxation, warmth, heaviness, etc., are then continued for about one minute. The subjects are then informed that the presentation will be shortened so that no anxiety will occur. Then, the same item is presented again but only for 5 seconds. If no one signals anxiety during this 5-second presentation, give 30 seconds of relaxation suggestions, then present the item again for 5 seconds, then 10 seconds, then 20 seconds. If anxiety is aroused on any of these presentations, go back to a 10-second presentation of the previous item in the hierarchy. Then proceed in the normal fashion.

I-3 (Continued)

Generally, the therapist should do everything possible to create and maintain a favorable "therapeutic relationship" during the procedure. The therapist should be warm, friendly, and as helpful as possible to the subjects in terms of helping them to overcome any obstacles or difficulties in the treatment.

Time Schedule

An attempt should be made to adhere as closely as possible with the following time schedule:

Session #1	(1)	Introduction and explanation of the rationale and course of treatment (15 minutes)
	(2)	Relaxation training (35 minutes)
	(3)	Discussion (10 minutes)
Session #2	(1)	Hierarchy construction (15 minutes)
	(2)	Relaxation training (35 minutes)
	(3)	Discussion (10 minutes)
Sessions #3-6	(1)	Desensitization proper (55 minutes)
	(2)	Discussion (5 minutes)

I-4

Attention-Placebo

The treatment outlined in this manual is designed to assess the contribution of non-specific factors operating in treatment, including interpersonal client-therapist variables, expectation of benefit and demand for improvement. Since this treatment procedure must adequately control for these important factors, it is critical that it produce an expectancy and demand for improvement equal to that generated by the other therapy techniques. The subjects will be informed that their fear of snakes is symptomatic of a deeper conflict related to sexual matters. The focus of this treatment shall be a group discussion of early psychosexual development experiences. Therapy shall be directed away from a discussion of the feared stimuli and toward the recollection of childhood memories as they relate to the development of the Freudian sexual instinct. The treatment involves three major parts: (1) a general explanation of the rationale and course of treatment, (2) recall training, and (3) a discussion of the development of the sexual instinct.

Explanation of the Rationale and Course of Treatment

The subjects will be told that their fear of snakes is only a symptom which permits them to remain unaware of

I-4 (Continued)

what is really anxiety-provoking to them. They shall be informed that the true anxiety-provoking stimuli are sexual matters. At this point the therapist should make a distinction between the popular concept of sexuality and the psychodynamic concept of psychosexual development. He should point out that all of our personality characteristics and behavioral tendencies are affected by the course of childhood sexual development. The choice of one's vocation, his interpersonal relationships, his self-concept, and his fears are all related to his early childhood experiences. The subjects will be informed, therefore, that their fear of snakes is related to the same set of experiences, and that treatment will involve bringing into awareness those childhood memories which have instigated this fear. Since the subjects' fear of snakes is merely a symbolic expression of a deeper intra-psychic conflict, therapy must focus on the recollection of psychosexual development experiences (not snake-related experiences) which are responsible for the present problem. By bringing these memories into immediate awareness, they will experience an abreaction of the inner conflict, and their fear of snakes will be reduced.

I-4 (Continued)

Training in Recall

Same as Training in Recall for the Cognitive Restructuring treatment.

Discussion of the Development of the Sexual Instinct

Throughout each of the discussion sessions (3-6), it is important that the therapists direct all comments away from any tendency to refer to snakes. The subjects must be made aware that a discussion of snake-related experiences would be unlikely to bring about improvement, since this would be a symptomatic approach to the problem. Instead, treatment must be conducted at a deeper level.

The discussion of psychosexual development experiences must integrate the childhood experiences described by the subjects with the Freudian conception of the sexual instinct. The subjects will be told that childhood is not accompanied by sexual innocence as is popularly believed. Various observational studies presenting "evidence" of infantile sexuality should be pointed out (i.e., observations of the erect penis in the infant). The subjects are to be informed that sexual motivations originate at birth, and that at various times in the life of an individual, different areas supercede others as sources of pleasure.

I-4 (Continued)

Furthermore, it should be pointed out that there is an observable orderly sequence of sexual development (oral, anal, phallic, latent, and genital stages).

Session 3 shall focus on a discussion of the oral erogeneous zone. The subjects will be prompted to discuss their early experiences involving aggressive biting, visits to the dentist, eating habits, verbal skills, etc. Relevant items may be taken from the subjects' written reports of early childhood experiences (obtained in Session 2). Session 4 shall deal with the anal erogeneous zone; Session 5, the phallic stage; and Session 6, the latent and genital states.

Time Schedule

An attempt should be made to adhere as closely as possible to the following time schedule:

Session #1	(1)	Introduction of the rationale and course of treatment (15 minutes)
	(2)	Recall training (35 minutes)
	(3)	Discussion (10 minutes)
Session #2	(1)	Recall training (35 minutes)
	(2)	Discussion (10 minutes)
	(3)	Writing of childhood experiences (10 minutes).

I-4 (Continued)

Sessions #3-6 (1) Psychodynamic discussion (15-minute presentation plus 40-minute discussion)

(2) Review (5 minutes)

Appendix J

Therapist Expectation Form

Rank order the following treatment groups regarding your expectation of therapeutic gain (1 = most likely to benefit; 5 = least likely to benefit).

Verbal Extinction _____

No Treatment _____

Systematic Desensitization _____

Cognitive Restructuring _____

Attention-Placebo _____

Appendix K

Subject Ratings of Therapist Competence and Likeability

How much did you like your therapist?

1	2	3	4	5
very little				very much

How competent was your therapist?

1	2	3	4	5
very incompetent				very competent