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SYSTEMATIC DESENSITIZATION AS A SELF-CONTROL TECHNIQUE FOR DEVELOPING SOCIALLY RELEVANT BEHAVIOR IN CHILDREN

by

Carroll Ray Thomas

A Dissertation Submitted to the Faculty of the

DEPARTMENT OF COUNSELING AND GUIDANCE

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA

GRADUATE COLLEGE

I hereby recommend that this dissertation prepared under my direction by Carroll Ray Thomas

entitled Systematic Desensitization as a Self-Control Technique for Developing Socially Relevant Behavior in Children

be accepted as fulfilling the dissertation requirement for the degree of Doctor of Philosophy

Dissertation Director — 3-10-77 Date

As members of the Final Examination Committee, we certify that we have read this dissertation and agree that it may be presented for final defense.

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Final approval and acceptance of this dissertation is contingent on the candidate's adequate performance and defense thereof at the final oral examination.

STATEMENT BY AUTHOR

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SIGNED: Carroll R. Thomas

I would like to dedicate this dissertation

to my mother,

Mrs. Ruby Nadine Thomas,

who has devoted the last thirty-two years of her life

to the education of second and third grade children

at Five Points Elementary School, Five Points, Tennessee,

and has provided continuous love and support

throughout my life;

and

to the memory of my father,

Mr. Millard Glanton Thomas (1912-1957),

who taught me about

common sense, courage, and compassion

and made my education possible.

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ABSTRACT

Systematic desensitization has been successfully employed in the modification of test anxiety and other academic problems. Although this procedure has been extensively used with college students, it has not been systematically studied with children. The present study investigated the effectiveness of a program based on systematic desensitization designed to eliminate non-assertive behavior and to develop assertiveness and self-control in eight and nine year old children in the third grade classroom after training a regular classroom teacher in the procedures. Twenty-one children served as subjects and were exposed to the treatment; however, more precise and continuous data were collected on six target children identified as non-assertive. The F.A.R.A.R.I. Behavioral Rating Scale for Children and the Nowicki-Strickland Locus of Control Scale for Children were employed to assess changes between the pre-treatment, post-treatment, and follow-up phases of the program. Behavioral observations of target children were made continuously throughout all phases of the program (pre-treatment phase, first treatment phase consisting of relaxation training, second treatment phase consisting of desensitization, post-treatment phase, and follow-up phase). Each phase lasted for five days. The target behaviors of major concern were

assertiveness and self-control; however, behavioral categories of the F.A.R.A.R.I. other than the Assertiveness category (Anxiety-Fearfulness, Gives Social Reinforcement, Impulsivity-Hyperactivity, Responsiveness to Social Cues and Social Reinforcement, and Aggressiveness-Oppositional) were also assessed. The treatment program consisted of systematic desensitization based on a self-control orientation plus covert self-modeling and covert self-reinforcement procedures. The treatment was conducted by the classroom teacher in the classroom setting for ten consecutive school days in thirty minute sessions held once each day.

The study employed a single-subject design to assess the treatment effects on the target children and a one-group pretest-posttest design to assess the treatment effects on all children in the class. Descriptive procedures were employed to chart changes of the target children as measured by behavioral observations. Analysis of variance for repeated measures and Tukey post hoc tests were used to assess treatment effects on all children in the class on all dependent measures.

Results of behavioral observations indicated that assertive behavior of all target children increased substantially once the treatment was introduced. Treatment gains were maintained at the post-treatment and follow-up phases of the program with two exceptions: Subject number one's gains were not maintained at the follow-up phase, and

subject number four's gains were not maintained at the post-treatment phase, although subject four's gains were evident at the follow-up phase. Differences in means between the pre-treatment to follow-up phases were significant. Differences in means between the pre-treatment to post-treatment and the post-treatment to follow-up phases were not significant. Results of the F.A.R.A.R.I. indicated that there were significant differences between all phases of the program on the individual categories except for the post-treatment to follow-up comparisons on Anxiety-Fearfulness and Gives Social Reinforcement. Results of the Nowicki-Strickland indicated that there was a significant increase in internal locus of control-of-reinforcement and a corresponding decrease in external locus of control-of-reinforcement between all phases of the program.

Conclusions of the study indicated that the program clearly resulted in positive effects on the target children as well as all other children in the class. Implications for school counselors and school psychologists, counselor education, teacher education, and parent education were discussed. Finally, recommendations were made for further research.

CHAPTER 1

INTRODUCTION

During the last decade there has been an increased acceptance on the part of educators of the importance of mental health for school learning (Biber 1961; Bower 1961; Gaudry and Spielberger 1971) as well as a growing awareness by psychologists of the importance of situational factors in the school environment which affect the development of positive mental health in children (Phillips 1968). There also has recently been a proliferation of literature in the area of intervention strategies specifically related to these concerns (Phillips, Martin and Meyers 1972). One such strategy has been the use of systematic desensitization and variations of this technique in the modification of test anxiety and other academic problems. Since this procedure has been primarily used with college students and proven to be quite effective, it is hypothesized that such a technique could prove to be equally effective with problems of elementary school children. Although desensitization has not been systematically studied with children, clinical case studies as well as experimental studies have provided some positive findings (Bruel 1971; Kondas 1967; Lazarus and Abramovitz

1962). Indeed, little research has been conducted with this particular intervention strategy with children in educational settings.

Statement of the Problem

The present investigation is an attempt to further the study of an intervention strategy with children in the natural environment (i.e., the classroom situation). This study specifically investigates the effectiveness of a treatment program based on systematic desensitization designed to help eight and nine year old elementary school children become more assertive in situations where they are non-assertive. The program is also directed toward teaching self-control skills to help the children develop courage and self-confidence in coping with problem situations. The treatment was conducted by a regular classroom teacher in a third grade classroom of an elementary school in Tucson, Arizona with the researcher serving as a consultant. The researcher initiated the intervention procedures by presenting the program to the school personnel, and the teacher and the children volunteered to participate in the study. All of the children in the class were exposed to the treatment, and data were collected on each child; however, more precise and continuous observations were made on non-assertive children identified by scores on the F.A.R.A.R.I. Behavioral Rating Scale for Children. The treatment program lasted two weeks,

and three measures of treatment effectiveness were employed: (1) behavioral observations (see Appendix A), (2) F.A.R.A.R.I. Behavioral Rating Scale for Children (see Appendix B), (3) Nowicki-Strickland Locus of Control Scale for Children (see Appendix C). The F.A.R.A.R.I. and the Nowicki-Strickland were completed during the pre-treatment, post-treatment, and follow-up phases of treatment, and behavioral observations were made continuously throughout all phases of the treatment program.

Target Behaviors

The primary target behavior investigated in this study was assertive behavior which was assessed by items of the Assertiveness category of the F.A.R.A.R.I. and the following classroom behaviors which were operationally defined for behavioral observations: (1) volunteering information, (2) initiating contact with the teacher in relation to academic tasks, (3) initiating contact with peers in relation to academic tasks, (4) making positive self-statements, (5) defending self verbally against unwarranted criticism by teachers or other adults and (6) defending self verbally against unwarranted criticism by peers. Self-control, another major target behavior, was assessed by items of the Nowicki-Strickland indicating Internal and External Locus of Control-of-Reinforcement. Anxiety-fearfulness, giving social reinforcement, impulsivity-hyperactivity, responsiveness to

social cues and social reinforcement, and aggressive-oppositional behavior were also assessed by items of their respective behavioral categories of the F.A.R.A.R.I.

Importance of the Study

The most significant aspects of the present study are the need for the development of assertive behavior, the need for the development of self-control skills, and the need for a feasible and practical program which can be carried out in the natural environment. The need for the development of assertive behavior has been emphasized by a number of researchers (Keat 1972; Patterson 1972; White 1975). Ineffective behaviors characterized as non-assertive, withdrawn, discouraged, overcompliant, fearful, inhibited, passive, or avoidance have been discussed by several authors (De Charms 1968; Dinkmeyer and Dreikurs 1963; Dudek and Lester 1968; Severson 1974; Walker 1967) and are considered synonymous and interrelated. For example, Dinkmeyer and Dreikurs (1963, p. 3) stated that "discouragement is explained as a lack of courage, and courage is assumed to be fearlessness." They further stated, "The immediate consequence of discouragement is withdrawal from the area where defeat is considered as inevitable" (p. 42). Additionally, Severson (1974, p. 90-91) reported that the patterns of performing and reacting of a sample of children with learning disabilities were characterized by overcompliant behavior that masked underlying

patterns that were frequently quite maladaptive. These children were described as being "extremely unassertive in situations where withdrawal and overcompliance worked to their disadvantage. In fact some of the children were depressed in varying degrees, failing to believe in their own talents or to have hope that they could overcome the obstacles preventing them from becoming high achievers." Severson concluded that "these children needed to be taught to be more assertive as well as to have a stronger sense of self-esteem", and he designed treatment procedures for this purpose.

The second aspect of the study, the need for the development of self-control skills, is clearly indicated by an extensive review of the literature related to the use of stimulant drugs in the treatment of children with behavioral and/or learning problems (Sroufe and Stewart 1973). Sroufe and Stewart (1973, p. 411) expressed concern about the effects of drugs on children's self-esteem and ability to learn and concluded their review by stating: "There are promising alternative approaches to the management of children with these problems, all of which involve the child's learning control of his own behavior." Emphasis on the child learning self-control applies to "normal" children as well as children with behavioral and learning problems. This position is supported by Yates' (1975) statement that a mature person is

one who has shifted from being externally controlled as a child (by parents, school teachers, etc.) to being self-controlled as an adult. It appears that the use of stimulant drugs may actually retard the process of learning self-control by providing an additional source of external control of children's behavior. If this is the case then we as professional educators and psychologists have an obligation to make public effective alternative approaches to the use of drugs as well as to explore and develop new procedures to facilitate the shift in locus of control. Indeed, it seems unrealistic to think that the trend toward increased drug use in treating learning and behavioral problems will change unless parents, teachers, and other persons interested in the development and well-being of children are provided with workable options from which to choose.

Further support for self-control training in education has been acknowledged by Glaser (1972). In addition, Thoresen and Mahoney (1974) have suggested that children be taught a variety of self-management skills in order to modify their environments for their learning requirements. Szasz (1974) also lends support to this position by indicating that values such as self-control must be taught and that this training should take place through non-coercive, non-autocratic methods since coercive and autocratic attitudes toward children may lead to subservience in later life.

The final aspect of the study concerns the development of a feasible and practical program for developing assertive behavior and self-control skills which can be carried out in the natural environment. The means of implementing this program in the natural environment is by utilizing the classroom teacher as the change agent. Since the classroom teacher is in a crucial position to be a facilitative force in the child's life, providing the teacher with skills to mediate specific problems (e.g., non-assertive behavior) as well as to prevent their occurrence in the future appears warranted and workable. These expectations appear to be quite realistic if the treatment program considers the time involved in carrying out the procedures and the skills necessary to do so. Indeed, it is unlikely that the teacher will make use of such procedures if these factors are not adequately dealt with.

Thus, the purpose of this study is to investigate the efficacy of procedures designed to provide the child as well as the teacher with specific problem-solving skills. This study is not intended to provide a panacea for all problems, but it is hoped that the findings will shed some light on the relevant issues involved and add support to the child's ability to control his/her own behavior as well as to preserve his/her right to self-determination. The theoretical rationale and experimental support for the particular procedures employed in this study are found in Chapter 2.

Philosophical Assumptions

It is assumed that learning takes place within the context of value systems; therefore, this section is an attempt to make explicit some of the values upon which the present study is based. A basic assumption underlying this study is that, "Whatever their orientations, people model, expound, and reinforce what they value" (Bandura 1974, p. 869). Probably the two most relevant variables in this respect pertain to the concepts of "assertive behavior" and "social interest." In regard to assertiveness, Alberti and Emmons (1975, p. 19) stated, "Each person has the right to be and express her/himself, and to feel good (not guilty) about doing so, as long as she/he does not hurt others in the process." Rotter (1962, p. 8) operationally defined Alfred Adler's concept of social interest as "the presence of observable behavior which other members of a social group regard as contributing to the welfare of the group." Social interest includes characteristics such as, capacity for cooperation, mutual assistance, belonging, and give and take (Dreikurs 1953). Inherent in both assertiveness and social interest are the concepts of social equality and mutual respect in terms of human rights and responsibilities. In the present study the values related to assertive behavior are most clearly represented by the self-modeling statements of the treatment program while the values related to social

interest are primarily represented by the self-reinforcement statements.

Research Hypotheses

The following hypotheses were formulated in view of the present discussion:

Hypothesis 1--There will be a significant increase in assertive behavior of target children as measured by behavioral observations during the treatment, post-treatment, and follow-up phases of the program.

Hypothesis 2--There will be a significant increase in assertive behavior of all children as measured by the F.A.R.A.R.I. Behavioral Rating Scale for Children at both post-treatment and follow-up.

Hypothesis 3--There will be a significant change in locus of control-of-reinforcement from external to internal for all children as measured by the Nowicki-Strickland Locus of Control Scale for Children at the follow-up evaluation.

Hypothesis 4--Follow-up evaluations will indicate continued improvement on all measures.

Additional Points of Interest--While not central to this study, there were two additional points of particular interest. The first point was related to Hypothesis 1 and concerned the effects of the two treatment phases on assertive behavior as measured by behavioral observations. It was predicted that the relaxation phase alone would not

significantly affect assertive behavior but that the desensitization phase would affect assertive behavior. The second point was related to Hypothesis 2 and concerned possible "generalization effects" or "side effects" of the treatment. It was predicted that categories of behavior as measured by the F.A.R.A.R.I. other than the Assertive category (Anxiety-Fearfulness; Gives Social Reinforcement; Impulsivity-Hyperactivity; Responsiveness to Social Cues and Social Reinforcement; Aggressiveness-Oppositional) would be positively affected should generalization effects occur.

Definition of Terms

Assertive Behavior--For the purposes of this study, assertive behavior is defined as that type of interpersonal behavior in which a person stands up for his/her legitimate rights in such a way that the rights of others are not violated (Alberti and Emmons 1974).

Non-Assertive Behavior--That type of interpersonal behavior in which a person does not stand up for his/her legitimate rights and/or allows others to violate his/her rights (Alberti and Emmons 1974).

Aggressive Behavior--That type of interpersonal behavior in which a person stands up for his/her rights in such a way that the legitimate rights of others are violated (Alberti and Emmons 1974).

Self-Control--That type of behavior displayed by a person "when in the relative absence of immediate external constraints, he engages in behavior whose previous probability has been less than that of alternatively available behavior (involving either less or delayed reward, greater exertion, or aversive properties, and so on)" (Thoresen and Mahoney 1974, p. 10).

Internal Locus of Control-of-Reinforcement--The person's "perception of positive and/or negative events being a consequence of one's actions and under personal control" (Rotter, Seeman and Liverant 1962, p. 499).

External Locus of Control-of-Reinforcement--The person's "perception of positive and/or negative events as being unrelated to one's own behaviors in certain situations and therefore beyond personal control" (Rotter et al., 1962, p. 499).

Covert Self-Modeling--A behavior therapy technique involving "cognitive rehearsal" in which a person visualizes himself/herself involved in a specific behavior (Thoresen and Mahoney 1974).

Covert Positive Self-Reinforcement--A behavior therapy technique in which a person presents himself or herself with a positive stimulus or removes a negative stimulus contingent upon a desired performance (Thoresen and Mahoney 1974).

Systematic Desensitization--"A behavior therapy technique in which deep muscle relaxation [or other responses incompatible with anxiety] is used to inhibit the effects of graded anxiety-evoking stimuli" (Wolman 1973, p. 367).

Limitations

Since the classroom teacher and the children were volunteer subjects and may have had characteristics significantly different than could be expected from a non-volunteer sample of the population at large, generalizability of the results to be derived from the study is restricted to a population similar to the one employed in this particular study. Other possible limitations of this study will be discussed in Chapter 5.

CHAPTER 2

REVIEW OF THE LITERATURE

The following review of literature is divided into two main sections. The first section deals with a description of systematic desensitization, including, the development, the standard procedure, problems treated, technique variations, and the theoretical rationale. The second section deals with systematic desensitization applied to educational problems, including, problems treated, intervention strategies with children in clinical and educational settings, and the theoretical rationale for the present study.

Description of Systematic Desensitization

Development

Systematic desensitization evolved from and is closely related to experimental psychology. Wolpe (1958) developed this method after conducting a series of experiments on the artificial induction of neurotic disturbances in cats and decided that the best way of treating these neurotic cats was by deconditioning. After feeding these neurotic cats in an environmental situation which was unlike the original traumatic environment, Wolpe fed the neurotic cats in situations which were more and more similar to the

original traumatic environment. In this manner he was able to extinguish the cats' neurotic behaviors. In extending this method to the treatment of adult neurotic patients, Wolpe found Jacobson's (1938) deep muscle relaxation technique to be an effective anxiety-inhibiting response, and imaginal processes to be an effective means of presenting anxiety-producing stimuli.

Standard Procedure

Wolpe's method of desensitization is conducted in the following manner. The patient is given training in deep muscle relaxation, anxiety hierarchies are constructed for each fear, and the relaxation is paired with the anxiety-producing stimuli. In individual sessions the therapist instructs the patient to relax, and then requests him/her to imagine the anxiety-evoking stimuli in a very moderate form. Imagining the scene vividly usually elicits some degree of anxiety; the patient is relaxed again and asked to stop imagining the scene and to continue relaxing. Repeating this procedure with the same stimulus or with a stimulus which produces more anxiety builds up conditioned inhibition (Wolpe 1958). The patient is eventually able to imagine the most anxiety-producing stimulus with tranquility, and this state generalizes to the real-life situation.

Problems Treated

Paul (1969a, 1969b) made a critical review of controlled studies of individual desensitization and reports of group desensitization. Paul's review covered 75 papers (55 controlled case reports or group studies and 20 controlled experiments) and nearly 1,000 different clients of different therapists. The controlled experiments contained 10 studies including designs which could potentially rule out intraclass confounding of therapist characteristics and treatment techniques. The findings of these studies were overwhelmingly positive, and they produced evidence for the first time in the history of psychological treatment that a specific therapeutic package produced measurable benefits for clients suffering from a broad range of problems in which anxiety was a primary factor.

According to Paul (1969a, 1969b), systematic desensitization has been effectively used in the treatment of a wide variety of phobias, including, snake phobias, spider phobias, bug phobias, rat phobias, lice phobias, dog phobias, animal phobias, injection phobias, driving phobias, acrophobias, claustrophobias, social phobias, "Army" phobias; interpersonal performance anxiety; sexual problems, including, homosexuality, exhibitionism, frigidity, impotence; psychogenic disorders, including, hysterical ptosis, hyperesthesia, anorexia, vocal nodules, speech impediment, bronchial asthma; and other problems such as test anxiety, interview anxiety,

anxiety neuroses, kleptomania, black-outs, smoking, obsessions, complusions, and various fears.

Technique Variations

Various desensitization techniques have been utilized effectively. One such technique is the administration of the standard desensitization procedure to groups of clients having similar types of phobias or anxiety reactions (Lazarus 1961; Mayton and Atkinson 1974; Paul and Shannon 1966; Suinn 1968). Another technique which has been used in group desensitization is contact desensitization, a variation of systematic desensitization in which the therapist models the appropriate response, and then keeps physical contact with the client and gradually shapes the client to perform the response himself (Lick and Bootzin 1970; Litvak 1969; Ritter 1968, 1969a, 1969b). Vicarious desensitization is another method in which the client observes a model interacting with the phobic object (Mann 1972; Mann and Rosenthal 1969; Hall and Hinkle 1972; Ritter 1968). In vivo desensitization is an additional technique in which the client is exposed to a hierarchy of real life anxiety-provoking stimuli in the therapist's presence (Atkinson 1973; Bootzin and Kazdin 1972). Studies have also been done in self-administered desensitization in which the therapist instructs clients to carry out desensitization on their own (Baker, Cohen and Saunders 1973; Kahn and Baker 1968; Morris and Thomas 1973; Phillips,

Johnson and Geyer 1972). Researchers have also been experimenting with technical devices to facilitate desensitization (Migler and Wolpe 1967) and much progress has been made by automated systematic desensitization (Lang, Melamed and Hart 1970; Branham and Katahn 1974; Gershman and Clouser 1974).

Theoretical Rationale

A Reciprocal Inhibition Interpretation. Wolpe (1958, p. 71) originally postulated reciprocal inhibition to be the explanation for the effects produced by systematic desensitization. The general principal on which this type of therapy is based was stated as follows:

> If a response antagonistic to anxiety can be made to occur in the presence of anxiety-provoking stimuli so that it is accompanied by a complete or partial suppression of the anxiety responses, the bond between the stimuli and the anxiety responses will be weakened.

Wolpe (1969) has made it clear that the effort of relaxing skeletal muscles carries with it autonomic responses opposite in direction to those characteristic of anxiety. These autonomic responses are seen as concomitants, not consequencies, of muscle relaxation. Thus, reciprocal inhibition is seen as involving antagonistic autonomic neural events that occur with many kinds of behavioral events, such as relaxation, assertive responses, and sexual responses. Neither the behavioral responses nor the anxiety responses are the autonomic events. Van Egeren (1971 p. 67) has indicated that reciprocal inhibition orginally referred to the

"momentary, readily reversible inhibition of one nerve process by another, e.g., inhibition between antagonistic skeletal muscles."

A Counterconditioning Interpretation. Davison (1968) indicated that there are close relationships between a reciprocal inhibition and a counterconditioning explanation, and he pointed out that the former constitutes a neurological equivalent of the latter, which involves behavioral phenomena. A counterconditioning explanation seems to suggest that a specific behavioral response (e.g., relaxation) is incompatible with another specific behavioral response (e.g., anxiety), regardless of the neurological underpinnings. Van Egeren (1971) has pointed out that this process actually involves the elimination of a stimulus-response connection by the attachment to the stimulus of an alternative response which is of greater strength than the original response.

An Extinction Interpretation. The extinction theory of systematic desensitization is somewhat confusing since it may refer to the reduction or elimination of the anxiety response or to the replacement of the anxiety response by an incompatible response, such as relaxation. Actually, as Yates (1975, p. 164) has pointed out, Wolpe's definition of reciprocal inhibition seems to refer to "extinction of the anxiety at the neurological level without its replacement by a reciprocal state" although it is obvious that this interpretation was not intended. Additionally, Yates indicates

that there seem to be commonalities between the extinction and habituation theories.

According to Van Egeren (1971), extinction refers to the more longlasting and possibly permanent decrease of a response by its repeated elicitation under nonreinforcement conditions in which the response had previously been reinforced.

A Habituation Interpretation. Habituation refers to temporary and reversible decrease of a response after its repeated elicitation by a repeated stimulus, especially a stimulus of low strength (Van Egeren 1971). Van Egeren (1970) tested the habituation model of Lader and Mathews (1968) and found no evidence to support it. Van Egeren pointed out that the habituation model is inconsistent with Wolpe's whole position since reciprocal inhibition stresses the lasting quality of the changes produced by systematic desensitization, and habituation essentially refers to changes in behavior which are not permanent. However, Watts (1971), in support of the habituation model, has argued that short presentation time periods of low anxiety stimuli would result in the greatest speed of desensitization and that long presentation for both low- and high-anxiety arousing items would lead to greater intersession anxiety reduction. Watts' empirical study upheld both of these predictions, the former being demanded by the habituation model and the latter giving additional support.

A Mediational, Self-control Interpretation. Rather than viewing relaxation as "reciprocally inhibiting" the anxiety reaction, Goldfried (1971, p. 228-229) has presented a mediational conceptualization of desensitization:

> Because of the individual's previous life experiences, he has learned to react to certain environmental situations with an avoidance response. Further, this overt response may be conceptualized as being the end product of a series of mediational responses and stimuli. According to this view, one can maintain that systematic desensitization involves not so much a passive "reciprocal inhibition" as it does the active building in of the muscular relaxation response and cognitive relabeling into the r-s mediational sequence.
>
> During the process of systematic desensitization, the client is taught to become sensitive to his proprioceptive cues for tension, and to react to these cues with his newly acquired skill in muscular relaxation. He is also taught to differentiate the proprioceptive feedback associated with tension from that associated the relaxation, and to identify this feeling of "calm" with the state of muscular relaxation. Once the client has been successful in reducing muscular tension and experiencing the feeling of "calm" in the aversive situation, he is in a better position to approach, rather than void, the heretofore fearful object. According to this view, then, what the client learns is a means of actively coping with the anxiety, rather than an immediate replacement for it.
>
> With further practice--both in the consultation session and in vivo--the client becomes better able to identify his proprioceptive cues for muscular tension, to respond by voluntarily relaxing it away, and to relabel his emotional state accordingly (cf. Schachter and Singer 1962). As this learning proceeds still further, relaxation responses may become anticipatory, thereby completely or partially "short circuiting" the anxiety reaction. In line with Osgood's (1953) discussion of mediation, one might also expect that with repeated practice of the mediational sequence, the responses and cues which initially have been proprioceptive would continue, but at a cortical level.

Thus, systematic desensitization is seen as being directed toward providing the client with an active anxiety-reducing skill which enables him/her to exercise greater self-control in a variety of anxiety-provoking life situations rather than construing the therapeutic procedure as involving a more or less passive elimination of specific fears.

A Social Learning Theory Interpretation. According to Rotter's social learning theory point-of-view as espoused by Efran and Marcia (1972), the original account of systematic desensitization as a counterconditioning process is inadequate. In a recent review, Murray and Jacobson (1971, p. 725) conclude: "The critical change required appears to be that the person comes to believe that he can cope with the situation. Once this belief is attained, anxiety declines. Such cognitive changes can come about through a variety of methods." According to Murray and Jacobson (1971, p. 727) evidence indicates that "neither muscular relaxation, nor a progressive hierarchy, nor imaginal rehearsal seems essential" and that "systematic desensitization may be viewed most adequately as a method of modifying beliefs and attitudes by the use of social influence." Research by Marcia, Rubin and Efran (1968) and the social learning analysis which prompted it is consonant with this interpretation.

Efran and Marcia (1972, p. 532) have provided an explanation of the effects of desensitization as follows:

> The therapist and client who work together using systematic desensitization are participants in a social contract, and their behavior toward each other influences the values of various goals. Moreover, the client's view of his abilities is influenced by the interpretations offered by the therapist and the view of self he gains while engaging in the novel task suggested by the therapist.
>
> The term "placebo effect" has been used to cover any improvement related to an expectation that one is being treated and should get better. However, the term has sometimes been used more broadly to mean any improvement produced by changes in expectation, attitude, or belief. These two uses must be clearly differientated to avoid confusion, and we prefer to use the term in its more specific sense. Used in that way, we would hesitate to describe the effects of systematic desensitization as "placebo effects." Merely telling a client that he will improve, especially when he is gathering data to the contrary, is a relatively weak therapeutic manipulation. Systematic desensitization is a stronger manipulation in that the quality of "evidence" made available to the client concerning his abilities is much more compelling, specific, and, in some cases, has internal or visceral components which are hard for a subject to treat lightly.
>
> In summary, the analysis of systematic desensitization in social learning terms, if valid, suggests the usefulness of turning our attention to the design of more varied and efficient means of modifying cognitions, rather than continuing to focus primarily on the conditioning parameters of behavior therapy techniques like systematic desensitization.

Systematic Desensitization Applied to Educational Problems

Problems Treated

Although systematic desensitization orginated in experimental and clinical settings it has been effectively used

in many other settings. One such setting in which this procedure has been increasingly used in recent years is the educational environment. In fact, a recent account (Thomas 1975) reveals over ninety studies in which systematic desensitization has been used in treating educationally related problems. Of these studies approximately two thirds have been related to test anxiety. The subjects in these studies ranged from nursey school children to graduate students; however, most of the subjects were college undergraduates. In many cases treatment procedures were modified to fit the specific problem, but for the most part the procedures were based on the paradigm developed by Wolpe (1958). Problems dealt with included: test anxiety of college students, high school students, junior high school students, and elementary school students; anxiety and attitudes related to mathematics; anxiety in academic and intellectual achievement situations; handwriting quality and reading problems; public speaking anxiety and "stage-fright"; manifest anxiety and interpersonal anxiety; counselor trainees' anxiety and ability to communicate; fear of making mistakes; behavior problems; classroom verbal behavior of mildly retarded children and adolescents; effective study habits; school phobias; emotional responses of nursery school children; job interview anxiety in student placement; gynecomastia and mental retardation; non-assertive behavior and self-control; and academic

skills, assertiveness, and self-concept of learning disabled children. While numerous studies have been conducted with desensitization, the following review is limited to intervention strategies conducted with children in clinical and educational settings. Further, it is assumed that most children receiving treatment in either setting are likely to be thwarted in maximizing their educational experiences. Therefore, all desensitization-related procedures are considered relevant to the purposes of the present study and are included in this review regardless of the original setting in which they were tested.

Intervention Strategies Conducted with Children in Clinical Settings

Systematic Desensitization--Lazarus and Abramovitz (1962) employed a variation of the standard desensitization procedure termed "emotive imagery" in the treatment of nine phobic children aged 7-14 years. In this procedure the therapist asked the child to close his/her eyes and imagine a sequence of events which included the child's favorable hero. The description of events proceeded in story fashion and the hierarchy items were introduced at the point in the story where the child's emotional involvement was maximally aroused. The feelings aroused by the narrative were self-esteem, pride, affection, etc. which served to compete with the anxiety response to the hierarchy items. If anxiety was

indicated the phobic stimulus was withdrawn from the narrative. Lazarus developed this procedure after finding that training in relaxation was often time consuming and sometimes impossible to induce with certain children. Of the nine cases reported in this study, the phobia was successfully eliminated by seven subjects after an average of 3.3 sessions.

Bruel (1971) employed an adapted desensitization technique with children ranging in age from 9-14 years who had experienced excessive fear reactions as a result of an earthquake in Los Angeles. Two groups of three subjects each were treated through a variety of techniques including relaxation training, visualization of earthquake related hierarchy scenes, personification of the earthquake, and implosive type therapy in which the children acted as on the spot reporters. Success was reported in most of the cases after brief treatment periods of three to five sessions. Bruel reported that the children she observed were able to relax and remain relaxed during various anxiety provoking stimuli used in the course of treatment, and the parents of the children reported cessation of phobic behaviors in their children at follow-up interviews.

Miller, Barrett, Hampe and Noble (1972) compared systematic desensitization, traditional psychotherapy (play therapy), and a waiting list control group in the treatment of single and multiple phobias, including fears of the dark,

fears of separation and injury, and school phobias, in 67 children aged 6-15. The treatment consisted of 24 sessions, and outcome effects were assessed by pre- and post-treatment ratings by the clinicians (based partly on direct observations in relevant anxiety situations) and ratings by the children's parents. Clinician ratings indicated no differences between treatment groups or among treatment groups and waiting list controls. All three groups showed improvement from pre- to post-treatment assessment; therefore, changes on this measure cannot be attributed to treatment since the control group received no therapeutic contact. Parent ratings indicated that treatment groups showed significant improvements over waiting list controls and were no different from each other. Apparently, treatments were not significantly well differientiated from one another. The desensitization treatment included a variety of other procedures including social skills training, reinforcement, and therapy for the parents. The traditional psychotherapy treatment included helping children examine and formulate behavioral strategies for dealing with stress. Additionally, problems of design and measurement which were not completely overcome limit any firm conclusions.

Hampe, Noble, Miller and Barrett (1973) conducted a follow-up evaluation of the Miller et al. (1972) study one and two years post-treatment. The subjects consisted of 62

of the original 67 children aged 8-17. Results indicated that eighty percent of the children were either symptom free or significantly improved and that only seven percent still had severe phobias. The successfully treated children tended to remain symptom free and to be free from other deviant behaviors as well. Sixty percent of the unsuccessfully treated children had continued treatment beyond the post-treatment assessment and most of them were symptom free two years later. It was also found that the effects of the original treatment were no longer related to outcome; however, age, status at the end of treatment, and time were related to outcome.

Relaxation Training and Biofeedback--Braud (1975) investigated the effects of electromyographic biofeedback and progressive relaxation upon hyperactivity and its behavior concomitants. Subjects were fifteen hyperactive children and fifteen non-hyperactive control children. All thirty children were given the following battery of psychological tests before and after treatment: Digit Span and Coding scales from the Wechsler Intelligence Scale for Children (WISC), Visual Sequential Memory scale from the Illinois Test of Psycholinguistic Abilities (ITPA), and the Bender Visual-Motor Gestalt Test. Also the parents of each child completed the following behavioral rating scales before and after treatment: Davids Rating Scales for Hyperkinesis, Cowgill, Friedland and Shapiro Behavioral Rating, Conners Behavioral

Rating, and the Lupin Child Behavioral Rating. Behavioral rating scales were also completed on each hyperactive child three times weekly "at home." The biofeedback apparatus was used once a week for six weeks to measure muscular tension levels of each hyperactive child, and it was used during the first and sixth weeks to measure muscular tension levels of each non-hyperactive control child. The fifteen hyperactive children were randomly assigned to the following three conditions with five children in each group: electromyographic biofeedback, progressive relaxation, and hyperactive control. The biofeedback group received two biofeedback training sessions a week of thirty minutes each in order to master frontalis muscular relaxation. The progressive relaxation group received two relaxation sessions a week of thirty minutes each in order to master muscular relaxation. The hyperactive control subjects received no training but had their tension levels monitored on the biofeedback apparatus. The treatment subjects were also requested to practice relaxation at home each day, particularly, to reduce activity and handle stressful situations.

The results indicated that the hyperactive children were significantly more tense than the non-hyperactive children before treatment. Both of the treatment procedures resulted in significant decreases in tension levels with biofeedback producing significantly greater reductions in

muscular tension. Both procedures resulted in significant decreases in hyperactivity and its concomitant symptoms as judged by parent ratings. No significant difference between treatments was found in the area of behavioral improvement. Although significant improvements were seen in the areas of hyperactivity and increased attention span, the greatest improvements were seen in the area of negative emotionality: decreased crying, decreased frustration, decreased hostility, decreased bed wetting, increased cooperation and emotional control. Both treatment groups showed significant improvement on the Visual Sequential Memory subtest of the ITPA and the Bender-Gestalt test. Both groups also improved on the Coding and Digit Span of the WISC but these changes were not significant. Neither the hyperactive control group nor the non-hyperactive control group showed significant changes on any of the measures. The results also indicated that the treatment could be maximally effective only if parents were cooperative and if children practiced and used the technique at home.

The author concluded that physical relaxation training techniques could be improved if additional relaxation training sessions were given and more time was spent with parents and children helping them learn how to incorporate the techniques into their daily living situations. In addition, it was stated that techniques for mental relaxation

such as visualizing passive nature scenes, mental concentration such as meditation, and mind blanking or mind stilling would appear to be helpful and necessary for maximum therapeutic effect.

Behavioral Hierarchy Model--Severson (1974), borrowing from the basic approach of systematic desensitization, has developed procedures for teaching academic skills, assertiveness, and improved self-concept to severely learning disabled children. Although no experimental outcome studies were found in the literature using this procedure, its inclusion in this review seemed appropriate. Severson's model consists of a hierarchy of activities with academic tasks at the top, academic games at the intermediate levels, and non-academic games at the bottom. From the top of the hierarchy each subsequent step involves a task with decreasing emphasis on academic skills and increasing emphasis on having fun. The treatment sessions are broken up into five-minute periods which begin with the child being asked to choose what he/she wishes to do. Each session averages forty-five minutes and forces the child to make nine choices.

Schedules of social and tangible reinforcement are developed to strengthen appropriate behaviors. Social reinforcement is employed systematically for effort and learning while tangible reinforcement is given to strengthen the child's positive feelings about being at the clinic, for

being involved in a particular activity at the end of each five minute period, and for different levels of successful accomplishment of academic tasks. Tangible reinforcement is in the form of tokens which can be exchanged for a wide variety of back-up reinforcements. Tokens for each five minute period range from zero to tasks with high intrinsic enjoyment to fifteen or more for the top task when the child is extremely reluctant to choose an academic task.

The treatment procedure takes place in three phases based on diagnostic teaching. During the first phase patterns of the child's task selections are observed to provide diagnostic clues to the child's reactions to achievement-related tasks. A baseline is obtained to see how rapidly the child shows postural tension and increases in frequency of errors as the difficulty of the material increases and as the clinician's reaction changes. A baseline on self-attitudes is also obtained, and information is gathered on the child's interaction with one or both parents with materials of similar difficulty to that used in the initial academic evaluation. The first phase is considered completed when the child shows no persistently deviant patterns of avoiding hierarchy activities, no unusual reactions to reinforcers, and when the schedules of reinforcement are clearly effective in improving the degree of effort shown and amount of learning achieved. Evidence of improvement is shown both in the amount of time the child spends engaged in the acadmeic tasks and in changes

in the rate of learning and retention, together with the increases in effort shown by the child while engaged in learning.

Once the child begins to choose the top task more frequently long-term bonus arrangements are introduced and the options to earn tokens are increased. This second phase involves two major ingredients, the effort to involve the child as much as possible in academic tasks during the session, and a more systematic effort to change the child's attitudes toward himself/herself. At this point the child is usually showing the kind of effort that provides ample opportunity to systematically help him/her to improve his/her feelings about himself/herself. First, a baseline on self-attitudes is obtained either through the administration of an inventory during the diagnostic period, or by asking the child how he/she feels about what he/she has done in the early stages of behavior therapy. Then, as the child achieves success, the clinician offers praise clearly reflecting how he/she feels about the child's performance. Then, the clinician makes comments reflecting how the child must feel about his/her own performance. Later, in the presence of the parents, the clinician asks the child to relate how he/she feels about his/her achievement. The intent is not only to strengthen the child's willingness to think positively about himself/herself, but also to begin the process

of weaning the child from dependence upon tokens and tangible reinforcers.

The third phase begins when the child is clearly making the most effective use of the sessions and is showing some capacity to work on materials between sessions. This involves a much more systematic extension of the program outside of the clinic, a key ingredient being the extent to which effective conditions of learning are created in the home. At this point in treatment the parent is put on the hierarchy. If both parent and child handle the interaction reasonably well, after two or three successful sessions some discussion is given to setting up a weekly session in the home. Simple hierarchies are constructed for use by the parents and they are taught how to introduce the opportunity for having a session and to wait for a definite indication of interest on the part of the child. If the child is ready for learning tasks at home but wishes to avoid introducing the parent into the situation at this point, other possible home tutors are looked for, such as a sibling, or learning activities are engineered which the child can do himself or herself. Because academic tasks in the home are likely to generate reactions that cannot be observed and corrected by the clinician, escalation takes place slowly until it is clear that the child can effectively cope with the special conditions.

Intervention Strategies Conducted with Children in Educational Settings

Systematic Desensitization--Kondas (1967) compared the effectiveness of systematic desensitization vs. relaxation vs. presentation of hierarchy items without relaxation vs. no treatment control in a study with twenty-three children aged 11-15 years. Each experimental condition contained six children with the exception of the presentation of hierarchy items without relaxation condition which contained five children. Students with symptoms of stage fright were selected by their teachers, and these subjects were given the Fear Survey Schedule. After seven relaxation sessions the systematic desensitization group began desensitization; five sessions were conducted at 5-7 day intervals. A standard hierarchy was employed in the procedure. Interview data and two parallel forms of the Fear Survey Schedule were employed as outcome measures five months after termination of treatment. Because some children had left school the follow-up sample size was smaller than the original sample. A significant reduction in Fear Survey Schedule scores was indicated by the data at follow-up. As a result of the study, Kondas concluded that desensitization is possible with children and may even produce better results than with college students. However, due to small sample size and the fact that no performance measures were used, this study is only suggestive.

Laxer, Quarter, Kooman and Walker (1969) compared desensitization with relaxation alone in the treatment of high test-anxious secondary school students, grades 9-12. Students were selected by their scores on the Alpert-Haber Achievement Anxiety Scale, the Taylor Manifest Anxiety Scale, and interviews with the school counselor. These subjects met for 20 minutes a day for a period of six weeks, and they were compared to subjects in a no-treatment control group. Criteria used to evaluate the success of the program were as follows: (1) debilitating test anxiety, (2) facilitating test anxiety, (3) Manifest Anxiety, (4) mathematics and science grades, (5) language and social science grades, and (6) nonacademic grades.

The results indicated that under both experimental conditions there was a significant reduction in anxiety but no improvement in performance measures. Findings also showed that the relaxation group was more effective in reducing general anxiety than the systematic desensitization group. In regard to using final grades as a measure of treatment success, the authors suggested that a difficulty is that students must be motivated to study and this may be totally unrelated to anxiety. Thus, unless the student studies he/she may not improve significantly on exams which require studying even though his/her anxiety has been reduced.. Outcome performance measures which did not require prior studying were used in order to minimize this confounding variable.

Mann and Rosenthal (1969) employed vicarious and direct counterconditioning through individual and group desensitization in the treatment of test anxiety in seventh grade students. (These researchers believed that procedures were needed to treat anxious students on a large scale directly in the schools.) Direct desensitization was compared with vicarious desensitization (the viewing of a videotaped desensitization session), and the basic variables were altered in the following ways: direct-individual; vicarious-individual; direct-group; group observing group (vicarious); group observing model (vicarious). All subjects were administered a measure of test anxiety and the Gates-McGinnite reading test upon completion of the experimental phase. Results indicated that the experimental subjects improved significantly more than the control subjects on both outcome measures; and the experimental variations did not result in significantly different outcomes among treatment conditions.

Bray (1972) compared three experimental treatments specifically designed to reduce fear of making mistakes in the second grade classroom. Twenty-one second grade students were randomly assigned to one of the experimental or control conditions where they participated in eight 30-minute sessions for eight consecutive school days. The first experimental group was exposed to a five-member peer group primed to make mistakes, calmly accept the mistakes, and try again.

The second experimental group was exposed to pictures and stories about individuals who, either because of mistakes or lack of fear of making mistakes, were able to lead very productive lives. The third experimental group experienced desensitization training following Wolpe's method, and then they were gradually introduced to evaluative classroom situations and emotive imagery. The control group received equal time exposure to the experimenter by means of the reading of E. B. White's classic, Charlotte's Web. The criterion measures were obtained from pre- and post-treatment observations of behavioral manifestations of anxiety using the Observer's Rating Scale and pre- and post-treatment measures of self-described fear as indicated by the Test Anxiety Scale for Children.

Results indicated that the subjects who experienced the experimental conditions exhibited significantly fewer overt manifestations of fear as reflected by lowered scores on the Observer's Rating Scale than the subjects who experienced the control condition. Although the treatment conditions also tended to be more effective than the control condition in reducing self-described fear as measured by the Test Anxiety Scale for Children, the differences were not significant. Additionally, there were no significant differences in the effectiveness of the experimental conditions although there was an overall trend in the direction of the order in which they were presented. In regard to the last

two findings the author concluded that failure to find statistically significant results might be attributed to the small sample size, lack of more precise measures, and other design problems.

Del Valle (1973) investigated the effects of systematic desensitization on the verbal behavior of thirteen mildly retarded children and adolescents assigned to special education classrooms. The target behaviors were operationally defined in terms of classroom verbalizations recorded by two observers, and a group of six extremely silent students and a group of seven excessively talkative students were formed from baseline data of observer recordings. Subjects participated in individual and group in vivo systematic desensitization through a hierarchy of progressively more complex and prolonged classroom verbalizations emitted in the presence of an increasing number of classmates.

Results indicated that the silent student group showed a significant increase in their mean classroom verbalization rate by the end of treatment, and this increase was maintined at a two-month follow-up. A significant increase in verbalization rate was shown by five of the six students at either the end of the experimental period or the follow-up, with three subjects exhibiting consistent changes. The talkative group did not show any significant changes in mean classroom verbalization rate by the end of treatment. One

student had shown a significant increase while a second subject had shown a significant decrease in verbalization rate. There was a rate increase at follow-up; however, only one subject exhibited a significant increase at that time. The author concluded that desensitization could be a useful treatment modality for extremely silent students, and he stated that fear might be a contributing factor in maintaining these students' inadequate behavior and consequently, their retardation. However, he added that the results could not be attributed solely to desensitization since modeling appears to be an unavoidable adjunct of in vivo group systematic desensitization, and teacher intervention could not be completely dismissed when working with students.

Barabasz (1973) employed Wolpe's systematic desensitization in treating test anxiety of fifth and sixth grade elementary school students in their regular homeroom settings where they had been randomly assigned at the beginning of the school year. The experimental groups consisted of one sixth grade and one fifth grade composed of High Test Anxious and Low Test Anxious students who were exposed to a systematic desensitization for five consecutive days. The control group consisted of one sixth grade and one fifth grade composed of High Test Anxious and Low Test Anxious students who were not exposed to the treatment. Criterion measures were taken

from the Lorge-Thorndike Intelligence Test and a polygraph test administered to all groups of students before and after treatment.

Results indicated that subjects exposed to systematic desensitization exhibited lower autonomic indices of test anxiety and showed a significant improvement of scores on the criterion measure. As measured by galvanic skin resistance, High Test Anxious students exposed to the treatment exhibited significantly lower anxiety scores than the High Test Anxious Controls, while no significant difference was found between Low Anxious Experimentals and Low Anxious Controls. High test Anxious students exposed to the treatment showed a significant improvement in their Lorge-Thorndike criterion test scores, while no significant differences resulted for the other groups of students. The findings that the criterion test scores of the Low Anxious Experimental students did not change significantly was of particular interest since the relaxation training evidently did not impair these students' test taking motivation. Thus, implementation procedures for classroom programs for test anxiety using desensitization appear to be simplified, since there is no indication that Low Test Anxious students would have to be segregated from the treatment setting.

Barabasz (1975) recently employed systematic desensitization in treating test anxiety in fifth, sixth, and seventh grade elementary school students in their regular

classrooms after training classroom teachers as paraprofessional desensitization therapists. The experimental groups consisted of one fifth, one sixth, and one seventh grade comprised of high and low test-anxious students who were exposed to the desensitization program by their homeroom teachers in their homeroom setting on five consecutive days. The control groups consisted of one fifth, one sixth, and one seventh grade comprised of high and low test-anxious students who were not exposed to the treatment. The high test-anxious condition consisted of 54 students, and the low-anxious condition consisted of 48 students. Criterion measures were Forms A and B of the reading comprehension subtest of the California Achievement Test and a polygraph test administered to all 102 students before and after treatment.

Results indicated that pre-post galvanic skin response scores measured by the polygraph for the experimental students classified as high test-anxious was significant while the scores for the experimental students classified as low test-anxious was not significant, although a tendency toward significance in the same direction was evident. No significant differences were found on this measure for control students in either low or high test-anxious classifications. Significant results were found on the California Achievement Reading Comprehension subtest scores for high test-anxious experimental students at each grade level, while

no significant differences were found for experimental low test-anxious experimental students at each grade level, nor among controls at each grade level. Thus, the results of this study employing classroom teachers as paraprofessional desensitization therapists are quite encouraging and are comparable to the previous study (Barabasz 1973) in which the treatment was conducted by the experimenter.

Freedenberg (1975) compared systematic desensitization, systematic desensitization plus attentional training, and a no treatment control group in the treatment of test anxiety and general anxiety. Forty-eight 9-10 year old children were selected as subjects from a population of 248 and randomly assigned to the three experimental conditions. A variation of Wolpe's systematic desensitization was employed in the systematic desensitization condition; attentional training involved modification of task-irrelevant self-talk and its application to tests; the no treatment control group did not meet other than for post-testing. Treatment took place under two conditions, a four week training period and a six week training period. The Spielberger State Anxiety Inventory for Children, a measure of test anxiety, and the Cattell Culture Fair Intelligence Test, a performance measure, were administered to all children approximately three to five days after the final training session and again five weeks later.

Results indicated that systematic desensitization plus attentional training produced a significantly lower anxiety level than no treatment control on the second post-test but not on the first. Thus, the delayed effects of the treatment were more powerful than the immediate effects. Systematic desensitization by itself did not produce a reduction in anxiety significantly lower than no treatment control; however, it was not significantly different from systematic desensitization plus attentional training. Neither treatment condition produced significant results on any of the performance measures, and no significant differences were found between the four week vs. the six week treatment period for anxiety or performance. However, a nearly significant interaction between length of treatment, treatment conditions, and trials was found. The overall results suggested that systematic desensitization could be an effective method to use with children to reduce test anxiety. The author added that there were some procedural factors which may have contributed to the lesser success of systematic desensitization alone as well as systematic desensitization plus attentional training.

Mishra and Thomas (1976) investigated the effectiveness of a program based on systematic desensitization in the treatment of non-assertive eight and nine year old children in the third grade classroom after training the regular classroom teacher in the treatment procedures and serving as

consultants. All of the children in the classroom (eighteen children) were exposed to the treatment; however, more precise and continuous data were collected on six children identified as non-assertive by normative data of the Assertiveness category of the F.A.R.A.R.I. Behavioral Rating Scale for Children. The F.A.R.A.R.I. (completed by the teacher) and the Nowicki-Strickland Locus of Control Scale for Children (completed by each child) were completed during the pre-treatment and post-treatment phases of the program, and behavioral observations (made by trained observers on the children classified as non-assertive) were made continuously throughout all phases of the program (i.e., five days during the pre-treatment baseline phase, five days during the treatment phase, and five days during the post-treatment phase). The target behavior for behavioral observations was assertiveness and was operationally defined by the following classroom behaviors: (1) volunteering information; (2) initiating contact with the teacher in relation to academic tasks; (3) initiating contact with peers in relation to academic tasks; (4) making positive self-statements; (5) defending self verbally against unwarranted criticism by teachers or other adults; (6) defending self verbally against unwarranted criticism by peers. The treatment program consisted of systematic desensitization based on the self-control variation suggested by Goldfried (1971) plus covert self-modeling and

covert self-reinforcement procedures described by Thoresen and Mahoney (1974). The treatment was conducted by the classroom teacher in the classroom setting for five consecutive school days in thirty minute sessions held once each day. Both the teacher and the students were unaware of the specific hypotheses of the study.

Results of the behavioral observations indicated a 46.35 percent increase in mean scores from the pre-treatment baseline phase to the treatment phase of total assertive behaviors for all six non-assertive children and a 34.55 percent increase from the pre-treatment baseline phase to the post-treatment phase. These findings were consistent for all non-assertive children except for one child whose score indicated a decrease from the pre-treatment baseline phase to the post-treatment phase, although there had been a 45.95 percent increase in assertive behavior from the pre-treatment baseline phase to the treatment phase. Thus, the results of behavioral observations indicated that assertive behavior increased significantly in all children once the treatment was introduced, and, with the exception of one child, the treatment effects were maintained quite well after the treatment was withdrawn. The results of the scores for the individual categories for the F.A.R.A.R.I. for all eighteen children in the class were as follows: (1) Assertiveness--nonsignificant; (2) Anxiety-Fearfulness--significant;

(3) Gives Social Reinforcement--significant; (4) Impulsivity-Hyperactivity--nonsignificant; (5) Responsiveness to Social Cues and Social Reinforcement--nonsignificant; (6) Aggressiveness-Oppositional--nonsignificant; (7) Total Score--significant. Thus, the Anxiety-Fearfulness and the Gives Social Reinforcement scores as well as the Total Score indicated significant changes in behavior. Although the other categories did not show significant changes, the scores were all in the positive direction. Results of the Nowicki-Strickland pre-treatment to post-treatment scores revealed no significant differences; however, this finding may be related as much to the nature of the test and the short treatment period as to the treatment itself. In summary, the results indicated that assertive behavior showed significant increases as measured by the behavioral observations but not as measured by the F.A.R.A.R.I. and that there was no measurable change in locus of control as measured by the Nowicki-Strickland. However, significant treatment effects were detected in variables other than assertive behavior, with the most significant effect being reflected in the scores of the Gives Social Reinforcement and the Anxiety-Fearfulness categories of the F.A.R.A.R.I. All behavior changes were in a positive direction, and no negative effects were detected. One of the most encouraging findings of the study was that assertive behavior (measured by behavioral observations) not only increased once the treatment was introduced, but also

the treatment effect was maintained in most children after the treatment was withdrawn. Although the post-treatment phase was only five days, this finding has important implications for programming generalization and maintenance of behavior change. In conclusion, the overall results of this study offer promise for the use of the treatment procedure under study by classroom teachers and appear to warrant further study.

Relaxation Training--Carter and Synolds (1974) employed relaxation training alone to enhance handwriting quality of thirty-two boys aged 8-3 to 11-5 years who were in special classes for minimally brain injured children. The relaxation treatment was administered to all of the children in the special education classes; however, only data collected on the thirty-two experimental subjects were analyzed. A normal control group was formed by an equal number of age-mated boys from which one handwriting sample was taken. Treatment consisted of dimming the classroom lights, asking the children to close their eyes and to listen to and follow the directions, and playing an audio tape containing seven minutes of instructions on how to relax. The lights were turned on when the playback was finished, and the children were asked to copy a short paragraph from the chalk board. The whole procedure took approximately twenty minutes and was repeated three days per week for four weeks. Evaluation of handwriting quality was conducted by two certified regular

elementary classroom teachers who were employed by another school district and were unaware of the research project. Each paper was rated on the variables of space, size constancy, line quality, letter formation, neatness, and overall legibility on a five-point scale ranging from excellent to poor. Interjudge reliability was also computed for the first, middle, and last paper written by each student for each writing variable and ranged from .73 to .93.

Results indicated that ratings on each variable generally increased from the first to the third paper, and performance of the experimental group approached that of the control group on every handwriting variable. A four month follow-up showed that there was a decrement in letter size constancy and formation; a slight increase in spacing quality, line quality, and neatness; and no change in overall legibility. Regarding transfer of learning to nontest conditions, small decrements in mean ratings were noted on the variables of spacing, line quality, letter formation, and overall legibility, and slight increases were noted on size constancy and neatness. The author concluded that the program of relaxation training resulted in increased efficiency in handwriting which transferred to other class periods and remained stable over time. Additional observations were that speed of writing increased and muscular tension and pressure while writing decreased considerably.

Modification of Self-talk--Meichenbaum and Goodman (1971) employed a cognitive self-instruction training procedure with fifteen impulsive second grade children in a public elementary school. In an attempt to increase self-control while performing a task, the children were taught to talk to themselves, initially overtly and then covertly. This talk consisted of task-relevant self-guiding instructions. The results indicated that the treatment group improved significantly in relation to the control group on the Porteus Maze Test, Performance I.Q. on the Wechsler Intelligence Scale for Children, and on a measure of cognitive impulsivity.

Theoretical Rationale for the Present Study

Goldfried's Mediational, Self-control Interpretation--The present study will be approached from the position presented by Goldfried (1971) in his mediational interpretation of systematic desensitization with a self-control orientation in which the client is provided with a general skill for reducing anxiety which enables him or her to exercise greater self-control. This orientation is supported by anecdotal evidence from studies using post-treatment questionnaires which revealed that desensitized subjects used relaxation as a general self-control skill for coping with anxiety (Bootzin and Kazdin 1972; Paul and Shannon 1966; Sherman 1972). More direct evidence in support of Goldfried's position comes from Zeisset (1968) who found that when relaxation training was

presented to subjects as an active coping skill it was more effective than either an attention-placebo or a no-contact control group. Additionally, Jacks (1972) compared the self-control procedural modifications suggested by Goldfried (1971) with traditional systematic desensitization in treating acrophobic subjects. He found that although individuals in both conditions were not different in their post-test performances, subjects in the self-control condition reported significant decrements in subjective anxiety while in the criterion situation as compared to subjects in the traditional desensitization condition. More recently it was found that the relaxation technique improved with practice, resulted in continued improvement in self-control after treatment, and was viewed in a more satisfactory manner than the standard procedure when presented to the client as a self-coping skill (Goldfried and Trier, 1974).

Self-control Paradigm of Mahoney and Thoresen--In extending the possibilities of self-control strategies, Thoresen and Mahoney (1974, p. 130) recently provided a review and discussion of some of the existing evidence and theory about self-control. In their view, self-control represents a dynamic continuum of degrees of self-control by which the individual modifies both his/her external and internal environments to bring about significant change. The paradigm of self-control presented attenuates two long-standing conventional dichotomies: external versus internal control and

environmental control versus self-control. Human behavior is seen as "partly determined by internal or covert processes involving imaginal, subvocal, and physiological responses as well as by a variety of external events." After an extensive review of the literature Bandura (1969) proposed three major sources of regulation: stimulus control, symbolic covert control, and outcome control, all of which can function at a covert or internal level as well as externally. According to Thoresen and Mahoney (1974, p. 130), "Such a conception is based on the homogeneity or continuity assumption that internal actions (viewed as responses) are susceptible to the same principles and hypotheses that have been demonstrated to influence overt behavior."

In an attempt to synthesize some of the common features found in the various forms of self-control, Thoresen and Mahoney (1974, p. 10, 14) suggested the following tentative defintion: "A person displays self-control when in the relative absence of immediate external constraints, he engages in behavior whose previous probability has been less than that of alternatively available behavior (involving either less or delayed reward, greater exertion, or aversive properties, and so on)." In this view "behavior" is an all-inclusive term, in that, "thoughts, feelings, and images are just as 'behavioral' as push-ups and conversation." This definition of self-control calls attention to three significant aspects of classical self-control phenomena: "they

always involve two or more alternative behaviors; the consequences of those behaviors are usually conflicting; and the self-regulatory pattern is usually prompted and/or maintained by external factors such as long-term consequences." Obviously, a person must have a choice as well as make a decision between two or more alternatives before he/she can exercise self-control. Although an abundance of evidence indicates that situational variables do alter behavior, the person's own management of those variables requires the theoretical concept of self-control. Two basic self-control strategies employed to modify the probability of the behavior occurring have been presented: "environmental planning" (stimulus control) and "behavioral programming" (self-presented consequences). Environmental planning takes place before the target behavior occurs by actions the individual takes to modify the situation, whereas, behavioral programming takes place after the target behavior through self-administered overt and/or covert consequences. The majority of the clinical applications presented by Thoresen and Mahoney (1974) illustrated combinations of both strategies.

Thoresen and Mahoney refer to their paradigm as "behavioral humanism", that is, a scientific strategy for changing human behavior that neither ignores nor de-emphasizes cognitive events. Indeed, this paradigm offers some unique possibilities for a rapproachement of the behavioristic and humanistic position. For example, it has been suggested that

by transforming humanistic goals and concerns into behavioral objectives, principles of behavior change might be used to facilitate humanistic purposes (Thoresen 1973). This approach appears desirable since, as Thoresen and Mahoney (1974, p. 110) have stated, "Theories that emphasize either covert (cognitive) or overt (environmental) determinants of behavior to the exclusion of all others have not been very successful in accounting for the breath and variability of human action. A comprehensive theory must incorporate both of these significant influences."

Covert Self-modeling--Borrowing from the paradigm suggested by Thoresen and Mahoney the present study will utilize covert self-modeling procedures as an important part of the assertive behavior hierarchy to be used in the desensitization process. Covert self-modeling may be regarded as a kind of "cognitive rehearsal" in which a person visualizes himself/herself involved in a specific behavior. The procedure is very close to self-desensitization; there is actually no major difference between the two procedures if problem situations are arranged in separate steps and relaxation training is presented (Thoresen and Mahoney 1974).

Meichenbaum (1971) has investigated the use of modeling therapy to modify self-statements of snake-phobic clients in a study designed to explore the effectiveness of modeled self-verbalizations versus self-statements without modeling. A second variable involved in the research was the modeling

style, that is, coping models (models initially exhibiting fearful behaviors, then coping behavior, and then mastery behavior) versus mastery models (models demonstrating only fearless behavior). The results distinctly revealed that the coping model who self-verbalized continuously facilitated the largest behavioral change and the greatest self-reported affective changes. The efficacy of the model who verbalized self-instructions in conjunction with self-reassuring and self-rewarding statements was revealed in that five of the nine clients in the coping-verbalization condition spontaneously and overtly self-verbalized in the post-test assessment.

In a further series of studies, Meichenbaum and his associates (Meichenbaum, Gilmore and Fedoravicius 1971; Meichenbaum and Goodman 1971; Meichenbaum and Cameron 1974) have shown the value of "internal" stimulus control in the development of adaptive behavior. They have reported impressive successes in treating individuals ranging from speech-anxious college students to institutionalized schizophrenics. Their procedures consist of teaching individuals to self-monitor their "internal monologues" in stressful situations and to progressively internalize instructional cues so that their maladaptive internal monologues are replaced by adaptive covert self-instructions. These researchers have drawn from the pioneering work of Luria (1961), Ellis (1962),

Vygotsky (1962), Bem (1967), and O'Leary (1968) in their studies dealing with cognitive variables in behavior modification. In many respects, Meichenbaum's methods and rationale are similar to Ellis' (1962) "rational-emotive therapy" and Lazarus' (1971) "cognitive restructuring" techniques.

Covert Positive Self-Reinforcement--Another procedure documented by Mahoney and Thoresen (1974) to be utilized as part of the present study's assertive behavior hierarchy is that of covert positive self-reinforcement which is comprised of presenting oneself with a positive stimulus or removing some negative stimulus contingent on a desired performance (Thoresen and Mahoney 1974). There has been considerable interest in the question of whether or not symbolically produced consequences may function as a reinforcing activity in controlling overt behavior. Weiner (1965) has reported some evidence that symbolized outcomes might have reinforcing characteristics that are comparable to their physical equivalents. In this study inappropriate motor responses of adult subjects were treated in three ways: (1) punished by withdrawal of monetary points; (2) by having subjects visualize the same loss; (3) presenting no consequences. The findings revealed that both visualized aversive consequences and the actual occurrences of these negative consequences reduced responding in comparison to the condition involving no consequences; however, somewhat weaker

results were produced by covert self-punishment. These results indicate that overt behavior may be partly controlled by covert self-reinforcement operations.

Positive self-reward, in which a person gives himself/herself a freely available positive reinforcer which is contingent upon exhibiting a specific behavior, has been the topic of several studies. Of particular interest are the laboratory studies by Kanfer (1970) in his "directed learning paradigm" and by Bandura (1971) in his "social learning paradigm" (and their respective associates) which revealed that self-rewarding behavior may be taught either directly or vicariously by the use of social modeling. In general these studies indicated that the effects of self-reward were greatest when modeled by another person on a basis congruent with that expected by the observer. Degrees of self-reward tended to be compatible with previous rates of external rewards; however, major inconsistencies occurred when the criterion of performance increased and/or became ambiguous. Self-reward procedures were most effectively learned when the measure of self-evaluation was clear and consistent.

Obviously, the function of self-evaluation is very important in understanding self-reward. One of the greatest difficulties in using self-reward as a self-control procedure rests in the excessively high standards that many persons take upon themselves. Thus, a person's behavior is "never good enough" to deserve self-reward. The joint use of

external modeling, in which others exhibit realistic self-evaluation and reward, and covert modeling provide possibilities in facilitating more appropriate self-reward (Thoresen and Mahoney 1974).

It has been suggested that the employment of an external positive self-reward, such as a point or token economy system, might be effective largely because of several positive covert events that take place concurrently within the person. That is, when there is a strong positive expectation that a procedure will really help, the person's problem behavior might be changed due to modifications in covert self-instructions and positive self-thoughts rather than to the external self-reward. Regardless of the explanation, the results of many studies strongly suggest that self-reward is comparable in effectiveness to rewards that are administered by some other agent (Thoresen and Mahoney 1974).

Locus of Control of Reinforcement--According to Thoresen and Mahoney (1974), questions pertaining to perceived locus of control and personal attribution (i.e., thoughts of what causes one's behavior) are related to self-control. Likewise, a person's perception of purpose and meaning are partly a function of whether he/she sees his/her behavior as being under his/her control. Obviously, self-regulation calls for a major change in the control of behavior from external change agents of the individual himself/herself. Research

on the internal-external control-of-reinforcement construct also appears to be concerned with self-control. Therefore, locus of control-of-reinforcement will be considered an important variable in the present study.

Rotter (1954) theorized that the probability of any behavior occurring was related to both the individual's expectancy of obtaining a reward for a specific behavior and to the significance of the reward for that behavior to the individual. The internal-external control-of-reinforcement construct was therefore construed as a generalized expectancy that was related to whether the individual possessed or lacked power over what happened to him/her. Rotter et al. (1962, p. 499) have defined more precisely what is meant by internal-external control-of-reinforcement:

> As a general principle, then, internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control. Whereas external control refers to the perception of positive and/or negative events as being unrelated to one's own behaviors in certain situations and therefore beyond personal control.

Some evidence indicates that an individual's perceived control over his/her environment can motivate the individual to act (Lefcourt 1966; Rotter, Chance and Phares, 1972). Moreover, reviews of the internal-external locus of control research (Lefcourt 1966; Rotter 1966) have indicated that the internal-external construct has sufficient reliability and validity to justify further use. A major deduction from

these studies regarding research in human learning is that the individual's perception of the degree of control he/she has over the experimental task should be taken into account. Additionally, these studies offer support for the hypotheses that the internally controlled individual is likely (1) to be alert to those aspects of the environment that provide useful information for his/her future behavior; (2) to take steps to improve his/her environmental condition; (3) to place greater value on skill or achievement reinforcements and to be generally more concerned with his/her ability; (4) to be resistive to subtle attempts to influence him/her (Rotter 1966).

Mahoney and Thoresen (1974) have suggested that it might be profitable to attempt to integrate empirically and theoretically the traditional "trait" work on internal-external control and the more recent operant work on programming generalizations with self-control research. This appears to be a quite realistic possibility since the philosophical approach of internal-external control and self-control seem to be very compatible. This idea is also consistent with Rotter's (1975, p. 57) position as indicated by his recent definition of social learning theory on which the internal-external contruct is based: "Social learning theory is a molar theory of personality that attempts to integrate two diverse but significant trends in American psychology--the stimulus-response, or reinforcement, theories

on the one hand and the cognitive, or field theories on the other."

Summary of the Review

Although outcome studies of systematic desensitization applied to adult problems (in which anxiety was a primary factor) have indicated "overwhelmingly positive" results (Paul 1969a, 1969b), the theoretical aspects of the procedure are not quite so clear cut or optimistically presented. It appears quite obvious from reviewing the various interpretations that the theoretical rationale has definitely not been agreed upon. As Yates (1975, p. 173-174) recently stated, "Although systematic desensitization apparently 'works', the critical factors involved remain unclear and the theoretical explanations conflicting and indecisive." Perhaps the best statement concerning the critical factors involved in the effectiveness of desensitization has been provided by Kazdin and Wilcoxon (1976, p. 753):

> In short, the present state of desensitization research allows for the rival interpretations that nonspecific ingredients account for change. Moreover, when this rival interpretation is ruled out, the evidence does not strongly support the efficacy of desensitization as a specific treatment strategy.

The review of desensitization-related strategies with children in clinical and educational settings indicates that there is a paucity of literature in which elementary school children have been subject to study. The youngest child with which some form of desensitization was used is cited in

Lazarus' and Abramovitz's report of a child aged seven and Bray's report of children aged seven and eight. The problems treated included: various phobias (e.g., fear of the dark, fear of separation and injury, and school phobias), fears and phobias related to an earthquake, "stage fright," test-anxiety and performance, general anxiety, fear of making mistakes, verbal behavior, and non-assertive behavior, treated by systematic desensitization; handwriting quality, treated by relaxation training; hyperactivity and its behavioral concomitants, treated by relaxation training and biofeedback; academic skills, assertiveness, and self-concept, treated by the behavioral hierarchy model; and impulsive behavior, treated by modification of self-talk.

Of the studies reviewed, eleven took place in the school setting; however, only six studies were conducted in the regular classroom situation (four in the regular classroom and two in the homeroom), and only two of these studies were carried out by classroom teachers. Problems actually treated in the school environment involved: test anxiety and performance, general anxiety, fear of making mistakes, verbal behavior, and non-assertive behavior treated by systematic desensitization; handwriting quality, treated by relaxation training; and impulsive behavior, treated by modification of self-talk.

The results of the studies reviewed indicated: (1) successful elimination or reduction of fears and phobias; (2) significant reduction in anxiety; (3) improvement in criterion performance measures, such as grades; (4) significant changes in overt behavior; (5) greater delayed effects than immediate effects (immediate effects across different variables were often insignificant); (6) and no aversive effects. While the studies reported varying degrees of success, the general trend lends support to the effectiveness of desensitization with children.

In most of the studies the standard procedure was modified to meet the specific requirements of the situation, and the results suggest that the applications of these variations were appropriate. The research designs employed ranged from clinical case studies to pretest-posttest control group designs with most studies being a form of the latter. Outcomes measures included: parent reports, parent behavioral rating scales, teacher behavioral rating scales, nonacademic grades, academic grades, achievement tests, intelligence tests, interview data, clinical observations, psychological tests and inventories, polygraph tests, and behavioral observations.

The theoretical rationale for the present study is based on the mediational, self-control interpretation of systematic desensitization formulated by Goldfried (1971).

This study also includes strategies documented by Thoresen and Mahoney (1974) and Mahoney and Thoresen (1974) in their extension of the self-control paradigm. The particular aspects of this paradigm used in the present study are covert self-modeling and covert positive self-reinforcement, strategies reflected most clearly in the work of Meichenbaum (1971). The internal-external control-of-reinforcement construct (Rotter 1966) is also considered to be an important variable since it is closely related to self-control. All of these concepts can probably best be characterized within a social learning theory of personality as described by Maddi (1976).

In light of this review, the present study is attending to the following problems which have not been considered in these studies or which appear to warrant further study: (1) application of the treatment program in the natural environment (the regular classroom); (2) implementation of the treatment program by the classroom teacher; (3) development of adaptive behavior (assertive behavior and self-control) as well as elimination of unadaptive behavior (non-assertive behavior); (4) and presentation of systematic desensitization as a self-control technique. The review of available studies appears to justify investigation of these issues.

CHAPTER 3

METHOD

Subjects

The study was conducted in an elementary school in Tucson, Arizona. The student body was composed of both Anglo-American and Mexican-American children. Twenty-one children in the third grade served as subjects, and the research was carried out in the classroom situation. All of the children in the class were exposed to the treatment program and data were collected on each child; however, more precise and continuous observations were made on six children identified as needing help in regard to the target behaviors. The teacher and the students were volunteer subjects. Although neither the teacher nor the children knew the specific hypotheses, they were informed of the purpose of the study prior to any intervention. This information was conveyed by a subjects' consent form (see Appendix D) which all of the children participating in the program were requested to sign. The children's parents were also requested to sign a similar form (see Appendix D) giving permission for their children to participate in the program.

Procedure

The research program was divided into five phases as follows: pre-treatment baseline phase; first treatment phase consisting of relaxation training; second treatment phase consisting of systematic desensitization; post-treatment phase; and the follow-up phase as shown in Table 1.

During the pre-treatment baseline phase the classroom teacher was asked to assess each child with the F.A.R.A.R.I. Behavioral Rating Scale for Children. This instrument was used to help identify children exhibiting a deficit of the target behavior which was defined as any score at least one standard deviation below the mean on the normative data of the Assertiveness category. Once these children were identified, a baseline was taken by behavioral observations of the target behaviors. These observations were made by graduate students trained for this purpose. The teacher then administered the Nowicki-Strickland Locus of Control Scale for Children in order to determine subjective feelings of internal-external control-of-reinforcement. Both the F.A.R.A.R.I. and the Nowicki-Strickland scales were administered during the pre-treatment, post-treatment, and follow-up phases, while behavioral observations were made continuously during all five phases of the treatment program.

After the baseline data had been collected the teacher was requested to implement the program as a natural process of daily classroom activities and was instructed in

Table 1. Experimental Design

First Phase	Second Phase	Third Phase	Fourth Phase	Fifth Phase
Pre-treatment baseline phase (five days)	First treatment phase of relaxation training (five days)	Second treatment phase of desensitization (five days)	Post-treatment phase (five days)	Follow-up phase (two weeks after treatment for five days)
DATA COLLECTION				
F.A.R.A.R.I.*			F.A.R.A.R.I.	F.A.R.A.R.I.
Behavioral observations	(continuous observations of target children)		Behavioral observations	Behavioral observations
Nowicki-Strickland			Nowicki-Strickland	Nowicki-Strickland

* Used directly to select target children

the procedure under study. Instruction consisted of explaining the treatment method in detail, discussing the specific means of implementing the program, providing the teacher with a deep muscle relaxation audio cassette tape, and providing written instructions for the program, including an assertive behavior hierarchy (see Appendix E for instructions). The method employed was based on Wolpe's (1969) standard procedure with some modifications. The primary modifications were presenting the procedure as self-control training as suggested by Goldfried (1971) and the inclusion of self-modeling and self-reinforcement statements derived from the work of Thoresen and Mahoney (1974). The relaxation tape was that used by Braud (1975) (with some slight changes) based on Jacobson's (1938) deep muscle relaxation technique. The example scene for visualization practice was that used by Freedenberg (1975). The assertive behavior hierarchy was based on situations in the classroom in which children are typically non-assertive or socially withdrawn. The hierarchy items were numbered from the lowest to the highest with respect to degree of assertion and were focused on socially relevant tasks or situations.

During the first treatment phase the teacher introduced the program to the class by having a short discussion about the target behaviors and explaining that the purpose of the procedures was to help them learn skills to develop courage, self-confidence, and self-control in handling problem situations.

In implementing the procedure the teacher initially played the relaxation tape to the class and modeled the exercises. When the relaxation instructions were finished the teacher asked the children to imagine that they were in their favorite place or situation where they felt most relaxed, free from tension, secure, pleasant, good, peaceful, etc., and she described an example situation where people might have these feelings (see Appendix E). This visualization practice was designed to help in the image-making process. After the visualization the children were asked what they visualized in their minds and how they felt. If the children had problems with imagery the teacher helped them by giving extra practice in visualizing one thing at a time which was more concrete or tangible until they had the object fixed in their minds. Subsequent sessions in this phase of treatment followed the same procedure until the children had all learned how to relax and imagine situations vividly without any problems. Each session was approximately 30 minutes in duration with relaxation lasting approximately 15 minutes and imagery practice and discussion lasting approximately 15 minutes. Sessions were conducted once a day for five school days.

The children were also encouraged to practice the standard relaxation exercises and/or a modified version of the technique while they were at home and in other situations, particularly, when in stressful situations and to help

them fall asleep at night. The modified version used was that suggested by Bugg (1972) in which the child uses three basic steps: First, he/she takes a deep breath and suddenly lets go. Second, he/she tells himself/herself to be calm and relax. Third, he/she thinks of something very pleasant for a few seconds (e.g., scenes learned in imagery practice). As can be seen the modified version utilizes some of the key elements of the standard procedure and can be quickly and effectively adapted to most situations. (Unfortunately, the researcher was unable to monitor the use of this technique in those situations.)

During the second treatment phase, desensitization took place by pairing relaxation with hierarchy items. In these sessions the teacher initially played the relaxation tape and modeled the exercises. Following the relaxation sequence the children were instructed to remain relaxed with their eyes closed, and the teacher began the subsequent procedures. First, she had the children picture the first situation on the hierarchy while concentrating on staying relaxed for approximately 10 seconds. Second, she had the children stop picturing the situation and concentrate only on relaxing for approximately 20 seconds. Third, she repeated steps one and two, three times or until each child could relax while imagining the aversive situation. Fourth, the teacher presented the self-modeling statements in which

the children pictured themselves successfully handling the situation with appropriate assertive behavior for approximately 20 seconds. Fifth, the teacher presented the self-reinforcement statements in which the children pictured saying positive statements to themselves for approximately 20 seconds. Sixth, the teacher proceeded to the next situation on the hierarchy and repeated the above steps. Seventh, after each session the teacher initiated a short discussion about the children's experiences and/or problems. Sessions were approximately 30 minutes in duration, with relaxation lasting approximately 15 minutes and desensitization and discussion lasting approximately 15 minutes. These sessions were also conducted once a day for five school days.

Data Collection Procedures and Instruments

Data Collection

The F.A.R.A.R.I. Behavioral Rating Scale for Children was completed by the teacher during the pre-treatment, post-treatment, and follow-up phases of the research. Behavioral observations were made by trained independent observers (four graduate students enrolled in the College of Education) who were unaware of the purpose of the study. Observations of target behaviors were made at ten second intervals for periods of forty-five minutes each day. Continuous observations were made during the first four phases of five days each and during the follow-up phase for five days. The

Nowicki-Strickland Locus of Control Scale for Children was administered by the teacher during the pre-treatment, post-treatment, and follow-up phases of the research. The teacher gave the tests to the children, read each item aloud twice, and asked the children to check yes or no on the test. An oral presentation was chosen in order to make the items more understandable and to be consistent with procedures employed by Nowicki and Strickland (1973) in the collection of the normative data. The teacher told the children that the purpose of filling out the questionnaire was to gather information on their attitudes and opinions in order to evaluate the program, and she assured them that their responses would be kept confidential. Both the F.A.R.A.R.I. and the Nowicki-Strickland were used to gather information on all of the children in the class, but the behavioral observations were only made on the target children. The teacher did not know which specific children were being observed. Total scores on the F.A.R.A.R.I., Nowicki-Strickland, and behavioral observations were tabulated by the experimenter, and at no time during the study did the teacher or behavioral observers have access to this information.

Instruments

The F.A.R.A.R.I. Behavioral Rating Scale for Children is a scale consisting of sixty items representing specific observable behaviors designed to assess the social

and emotional characteristics of elementary school children (grades K-6) in classroom settings. This instrument contains six categories derived by factor analysis of the original pool of items. According to Baker, Burkholder, Mishra and Davis (1976) three categories of the scale represent adaptive behaviors hypothesized to be positively related to learning: (1) Assertiveness: "the child's ability to verbally express his feelings and needs in a socially appropriate manner" (p. 4); (2) Gives Social Reinforcement: "the child's ability to provide positive feedback to other people, both peers and adults" (p. 4); (3) Responsiveness to Social Cues and Social Reinforcement: "the extent to which the child is alert to social stimuli and interpersonal situations" (p. 4). Three categories of the scale represent maladaptive behaviors hypothesized to be negatively related to learning: (1) Anxiety-Fearfulness: "behaviors which reflect unusual sensitivity to disapproval or criticism, hesitancy to participate, and tendencies toward social isolation and immaturity" (p. 5); (2) Impulsivity-Hyperactivity: "impulse control and motor activity" (p. 5); (3)Aggressiveness-Oppositional: "oppositional, destructive, disruptive, and abusive behaviors" (p. 5).

The classroom teacher rates the frequency of occurrence of each behavior on a five point Likert-type scale ranging from "never" to "very frequently." Completion of the scale requires no special training or instructions and takes

approximately 15 minutes for each child. Scoring procedures permit separate analysis for each of the six behavioral categories or subtests, thus, deficits in the adaptive behavioral dimensions and/or excesses in the negative behavioral dimensions can be determined. High frequency of adaptive behaviors and low frequency of maladaptive behaviors are both given high scores; therefore, the Total Score provides an index for overall adjustment.

Although this instrument is in the experimental stage, preliminary normative data are available on 73 kindergarten subjects, 63 first grade subjects, 63 second grade subjects, 79 third grade subjects, 26 fourth grade subjects, 78 fifth grade subjects, and 62 sixth grade subjects (Baker, Burkholder and Davis 1975). Additionally, Baker et al. (1976) found positive correlations between F.A.R.A.R.I. test scores and the Stanford Achievement Test in a study with 274 subjects in grades K-6. All correlations between the F.A.R.A.R.I. and the Stanford Achievement Test were found to be statistically significant. The Assertiveness category produced the highest correlation (r = .61) and was considered to be the best predictor of scholastic achievement among the other categories of the F.A.R.A.R.I. The Responsiveness to Social Cues and Social Reinforcement category produced the next highest correlation (r = .56) other than the Total Score for all categories (r = .58). The authors concluded the

study by stating that "lack of success in learning seems to be more closely related to deficiency in positive behaviors than to excesses in socially maladaptive behaviors such as aggressiveness and hostility" (p. 8). The results of this study corroborate the findings of Burton L. White (1975) who found that highly competent children possessed certain specific social abilities. The abilities which White found were similar to those measured by the three positive categories of the F.A.R.A.R.I., particularly, the behaviors described in the Assertiveness and the Gives Social Reinforcement categories.

The Nowicki-Strickland Locus of Control Scale for Children is a 40-item paper-and-pencil measure in which questions are answered either yes or no. The present form of the test was derived from 102 items and was constructed on the basic of Rotter's (1966) internal-external control of reinforcement definition. The items describe situations of reinforcement across interpersonal and motivational areas such as affiliation, achievement, and dependency.

Norms for the present 40-item scale were based on 1,017 children (mostly Caucasian) ranging from the third through the twelfth grade. Biserial item correlations resulted in moderate but consistent item-total relationships for males and females in the third, seventh, and eleventh grades. Internal consistency estimates using the split-half

method and corrected by the Spearman-Brown formula were r = .63 (for grades 3, 4, 5); r = .68 (for grades 6, 7, 8); r = .74 (for grades 9, 10, 11); and r = .81 (for grade 12). Test-retest reliabilities sampled six weeks apart at three grade levels were .63 for the third grade, .66 for the seventh grade, and .71 for the tenth grade. Construct validity for the scale was investigated by examination of its relation to other measures of locus of control, and results were reported as follows: significant correlations (r = .31 for 182 children in grade 3; r = .51 for 171 children in grade 7) were found with the I+ but not the I- scores of the Intellectual Achievement Responsibility Scale; significant correlations (r = .41 for 29 children aged 9-11) were found with the Bailer-Cromwell score; significant correlations (r = .61 for 76 college students; r = .38 for 46 college students) were found between the Nowicki-Strickland adult scales and the Rotter I-E Scale.

Preliminary investigation with this scale indicated that scores were not related to social desirability or intelligence but were related to achievement as measured by test scores. Since the construction of the scale, continued research with a wide range of subject populations has produced additonal construct validation with variables such as popularity, ability to delay gratification, and prejudice. Results of these studies support the utility and validity of the scale.

The instrument used for behavioral observations was devised by the experimenter and consists of a set of six operational definitions of classroom behaviors and a coding system for recording data. Instructions for scoring and a timer set for ten second intervals were included. The categories of target behaviors were derived from the Assertiveness category of the F.A.R.A.R.I. by deleting unnecessary items and operationally defining the items which were selected.

Experimental Design

The present study employed a single-subject design which lends itself well to study in the natural environment. Maslow (1966) and Thoresen and Mahoney (1974) consider traditional research designs for scientific study of the individual to be inadequate. Sidman (1960, 1962) also shows that in the single-subject design a reliable baseline can be established and then changes demonstrated after a modification procedure.

In this study a "continuous intervention" was employed; that is, treatment was applied continuously over several points in time. The experimental units were termed, "unit-repetitive," since they were single intact bodies observed at several successive points in time. Sampling time units for measurements were 10 second intervals, taken for 45 minute periods at a regular time each day during the

treatment program. The particular variation on the basic single-subject design employed was the "operant" design (Glass, Willson and Gottman 1975; Hersen and Barlow 1976). This design is also described by Thoresen and Mahoney (1974) as the "operant reversal" or the "ABAB design." This study used an ABA design, that is, the last phase or the "reintervention" phase of the ABAB design was eliminated. This appeared to be justified for this type of study according to Thoresen and Mahoney (1974, p. 31) who stated, "Some behaviors, such as reading or other cognitive skills are unlikely to return to baseline frequencies when their training conditions are removed. More pertinent to self-control, however, is the fact that individuals may strongly object to 'reversing' to pretreatment conditions after they have executed a successful self-control program." Additionally, Glass et al. (1975, p. 33) stated that "many processes--those called 'non-stationary'--have no baseline, in effect. However, in such cases, one would be justified in concluding that an intervention had an effect even if the process did not return to 'baseline' when the intervention was removed." Since one of the basic points of this study was to teach cognitive skills, it was not expected that behaviors would return to baseline once the treatment had been discontinued; therefore, the "intervention" phase would serve no purpose.

In addition to the single-subject design employed to assess the treatment effects on the target children, a "one-group pretest-posttest design" (Campbell and Stanley 1963) was used to assess the treatment effects on all children in the study. Due to several possible uncontrolled extraneous variables this design precludes definite conclusions regarding differences between pretest and posttest measures resulting from the treatment; however, it does provide an economical means of determining if the treatment is ineffective. Thus, the one-group pretest-posttest design provides information on whether further investigation with a more elaborate and expensive experimental design would be warranted.

Data Analysis Scheme

Descriptive procedures were employed to chart changes of the six target children measured by behavioral observations. Statistical procedures were used to assess treatment effects on the six target children as a group as well as on all twenty-one children in the class. Analysis of Variance for repeated measures and Tukey post hoc tests were used to determine differences between pre-treatment, post-treatment, and follow-up scores on all dependent measures.

CHAPTER 4

RESULTS AND DISCUSSION

This study was designed to investigate the effectiveness of a treatment program based on systematic desensitization by determining its effect on specific behaviors of twenty-one elementary school children. The F.A.R.A.R.I. Behavioral Rating Scale for Children and the Nowicki-Strickland Locus of Control Scale for Children were employed to assess changes of all children between the pre-treatment, post-treatment, and follow-up phases of the program. Behavioral observations were made of target children continuously throughout all phases of the program. The target behaviors of major concern were assertive behavior and self-control; however, behavioral categories of the F.A.R.A.R.I. other than Assertiveness (Anxiety-Fearfulness, Gives Social Reinforcement, Impulsivity-Hyperactivity, Responsiveness to Social Cues and Social Reinforcement, and Aggressiveness-Oppositional) were also included in the assessment. This chapter will be devoted to the presentation and discussion of the results of the study. Findings related to the target children and findings related to all children in the study will be presented separately for the sake of clarity and convenience.

Effects of the Treatment on the Target Children

Hypothesis 1 was that there would be a significant increase in assertive behavior of target children as measured by behavioral observations during the treatment, post-treatment, and follow-up phases of the program. The results related to this hypothesis are summarized in Figure 1 and Table 2. Figure 1 shows the effects of the intervention strategy on all six target children as a group and provides daily frequencies as well as means for assertive behaviors for each phase. The means for each phase of the program were: (1) 7.8 for the pre-treatment baseline phase; (2) 15.6 for the first treatment phase; (3) 12.6 for the second treatment phase; (4) 12.8 for the post-treatment phase and (5) 16.0 for the follow-up phase.

Table 2 shows the percent of change in means for assertive behaviors for all six target children as a group as well as for individual target children between all phases of the program. The percent of change in means for all six target children as a group between phases were: (1) 100.00 percent increase from the pre-treatment baseline phase to the first treatment phase ; (2) 61.54 percent increase from the pre-treatment baseline phase to the second treatment phase; (3) 64.10 percent increase from the pre-treatment baseline phase to the post-treatment phase; (4) 105.13 percent increase from the pre-treatment baseline phase to the

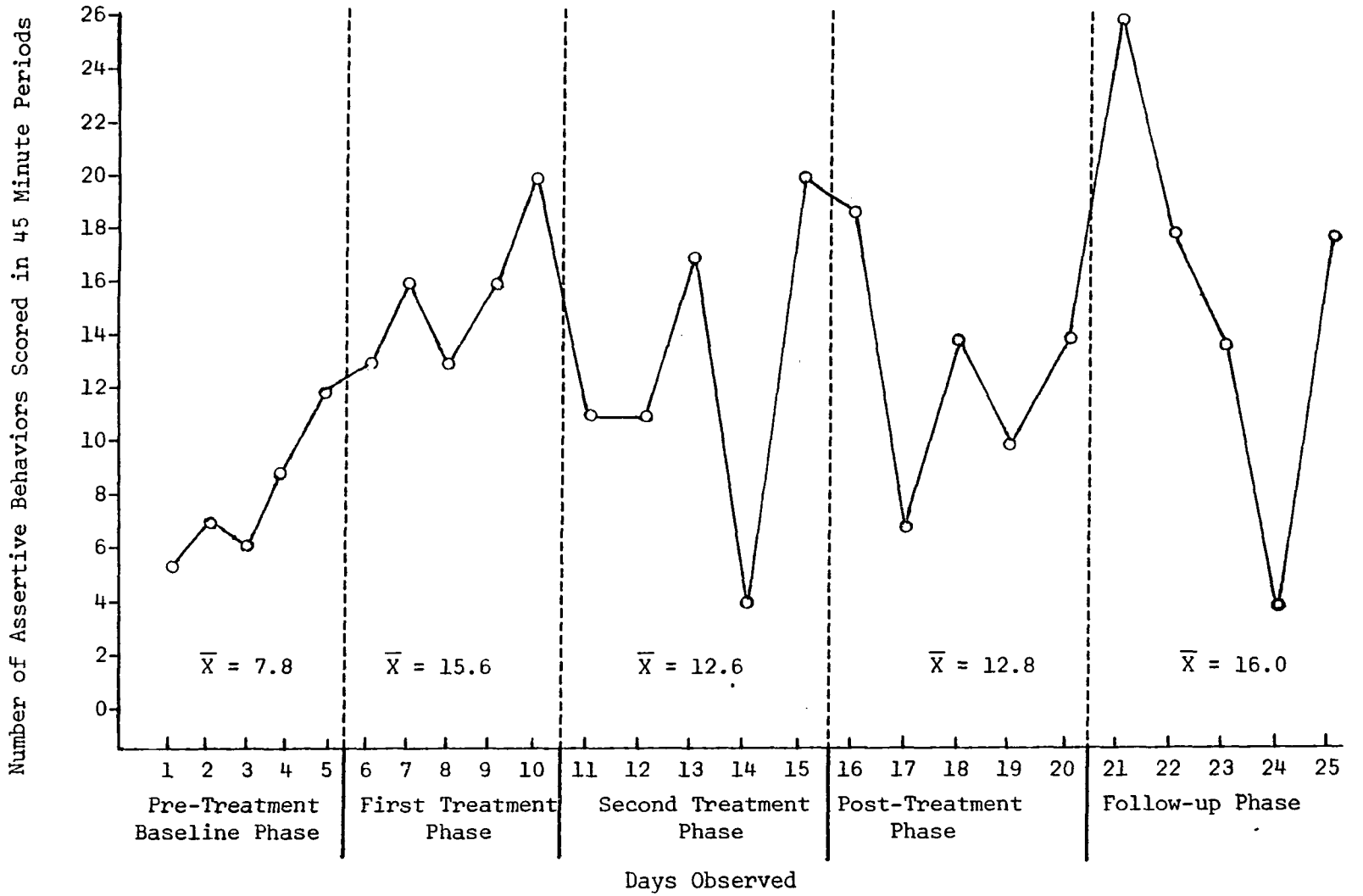

Figure 1. Total Frequencies and Means of Assertive Behaviors for All Six Target Children

Table 2. Percent of Change in Mean Assertive Behaviors of Target Children Measured by Behavioral Observations

	Pre-Treatment 1	Pre-Treatment 2	Pre-Post	Pre-Follow-up	Post-Follow-up
Subject 1	+11.11	+33.33	+88.89	0.00	-47.06
Subject 2	+20.00	+40.00	+20.00	+120.00	+83.00
Subject 3	+125.00	+50.00	+25.00	+100.00	+60.00
Subject 4	+20.00	+60.00	-20.00	+60.00	+100.00
Subject 5	+180.00	+70.00	+140.00	+170.00	+12.50
Subject 6	+216.67	+116.67	+33.33	+18.33	+112.50
Total Scores	+100.00	+61.54	+64.10	+105.13	+25.00

follow-up phase; (5) 25.00 percent increase from the post-treatment phase to the follow-up phase. Thus, from the data presented in Figure 1 and Table 2 it can be seen that there was a substantial increase in assertive behavior of all target children as a group once the treatment was introduced. These gains remained substantially higher than the pre-treatment baseline scores, although there was a decrease in mean scores from the first treatment phase to the second treatment phase.

The percent of change in mean scores for each individual target child was consistent with the findings for all target children as a group; however, two children (subject number one and subject number four) deviated from this

pattern during the maintenance phases (post-treatment and follow-up) of the program. Observations of subject number one indicated no change in means from the pre-treatment baseline phase ($\bar{X}$ = 1.8) to the follow-up phase ($\bar{X}$ = 1.8) and a 47.06 percent decrease in means from the post-treatment phase ($\bar{X}$ = 3.4) to the follow-up phase ($\bar{X}$ = 1.8), although there had been a 88.89 percent increase in means from the pre-treatment baseline phase ($\bar{X}$ = 1.8) to the post-treatment phase ($\bar{X}$ = 3.4). Observations of subject number four indicated a 20.00 percent decrease in means from the pre-treatment baseline phase ($\bar{X}$ = 1.0) to the post-treatment phase ($\bar{X}$ = 0.8); however, there was a 60.00 percent increase in means from the pre-treatment baseline phase ($\bar{X}$ = 1.0) to the second treatment phase ($\bar{X}$ = 1.6) and a 60.00 percent increase in means from the pre-treatment baseline phase ($\bar{X}$ = 1.0) to the follow-up phase ($\bar{X}$ = 1.6). (The effects of the treatment on each individual target child are presented in Figures 2 through 7. Daily frequencies and means for assertive behavior for each phase are provided.)

Analysis of variance for repeated measures and post hoc tests were also employed to determine differences between pre-treatment, post-treatment, and follow-up scores for all six target children as a group. The results of the analysis of variance indicated a significant F-ratio ($F = 5.49$, df 2/17, $p < .05$). Tukey post hoc tests for differences in means between phases indicated: (1) 2.5 (non-significant)

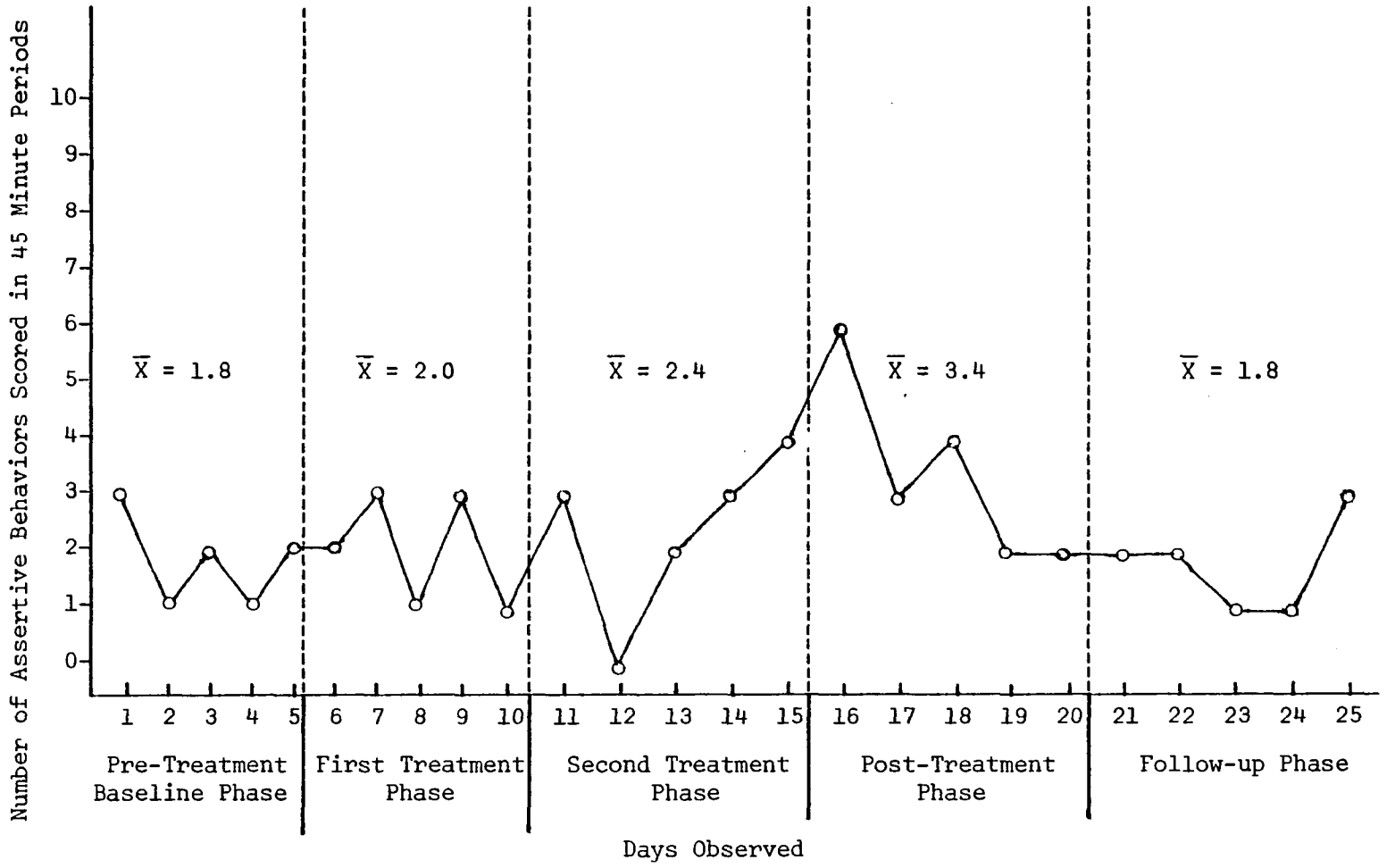

Figure 2. Frequencies and Means of Assertive Behaviors for Subject Number One

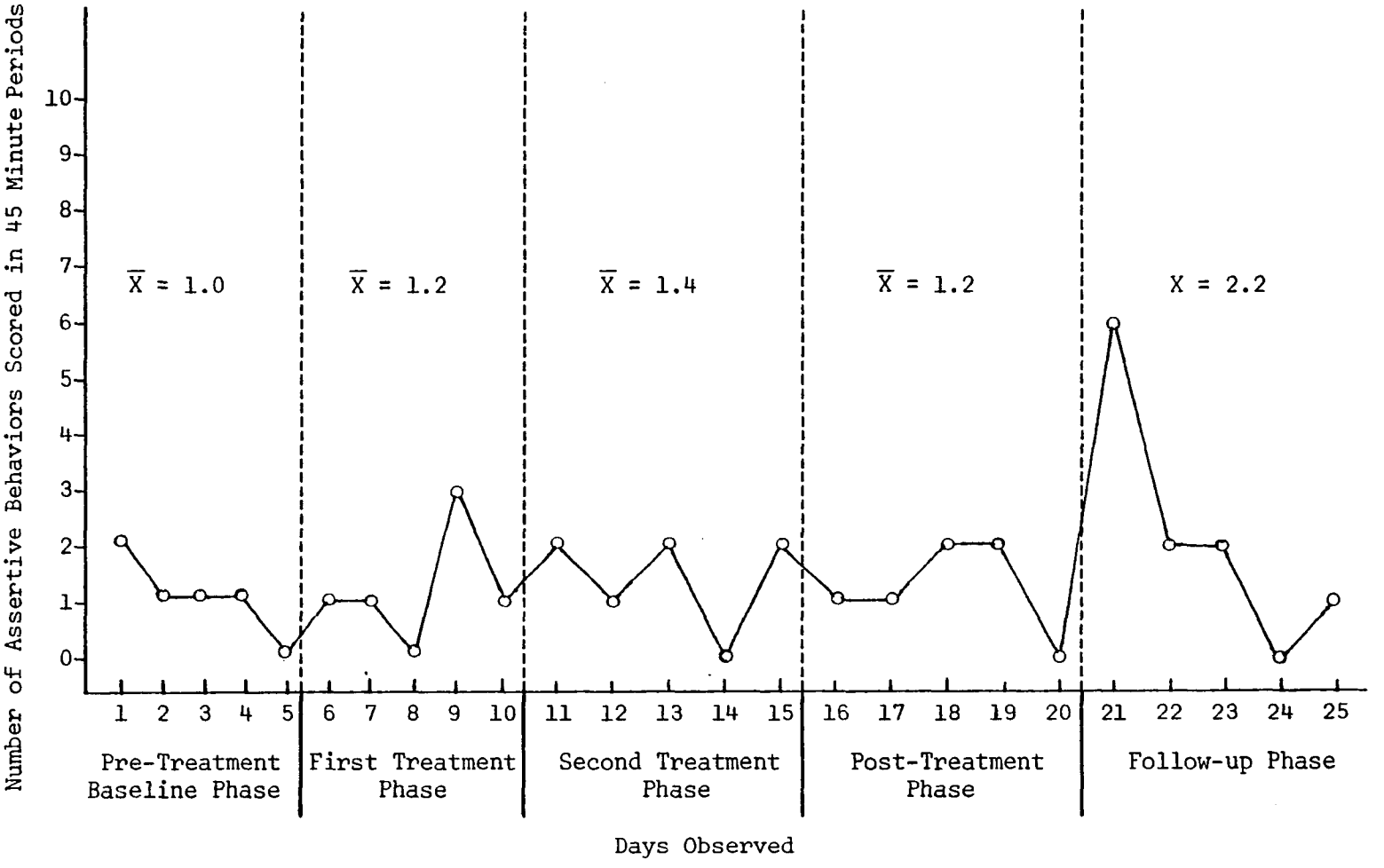

Figure 3. Frequencies and Means of Assertive Behaviors for Subject Number Two

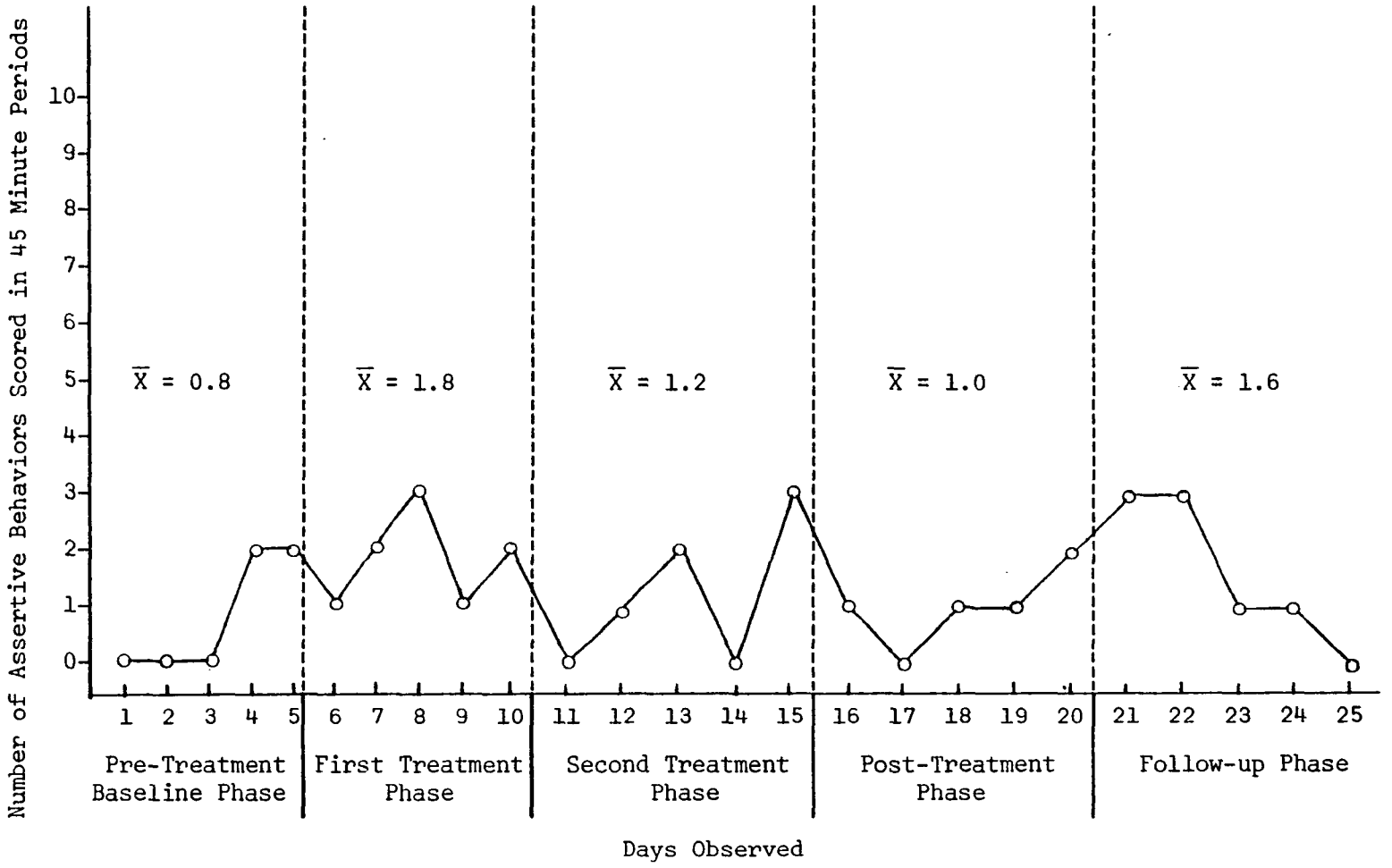

Figure 4. Frequencies and Means of Assertive Behaviors for Subject Number Three

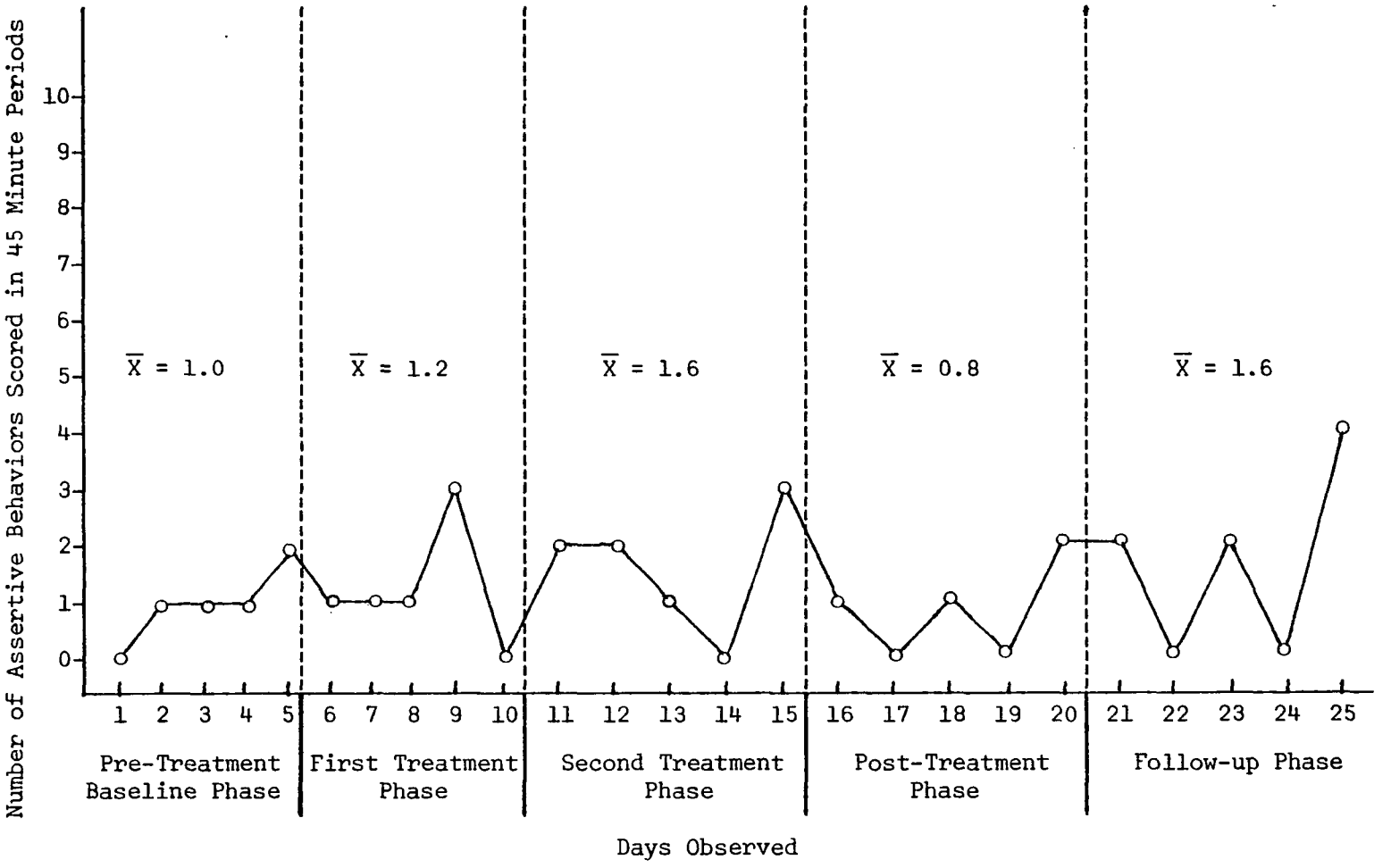

Figure 5. Frequencies and Means of Assertive Behaviors for Subject Number Four

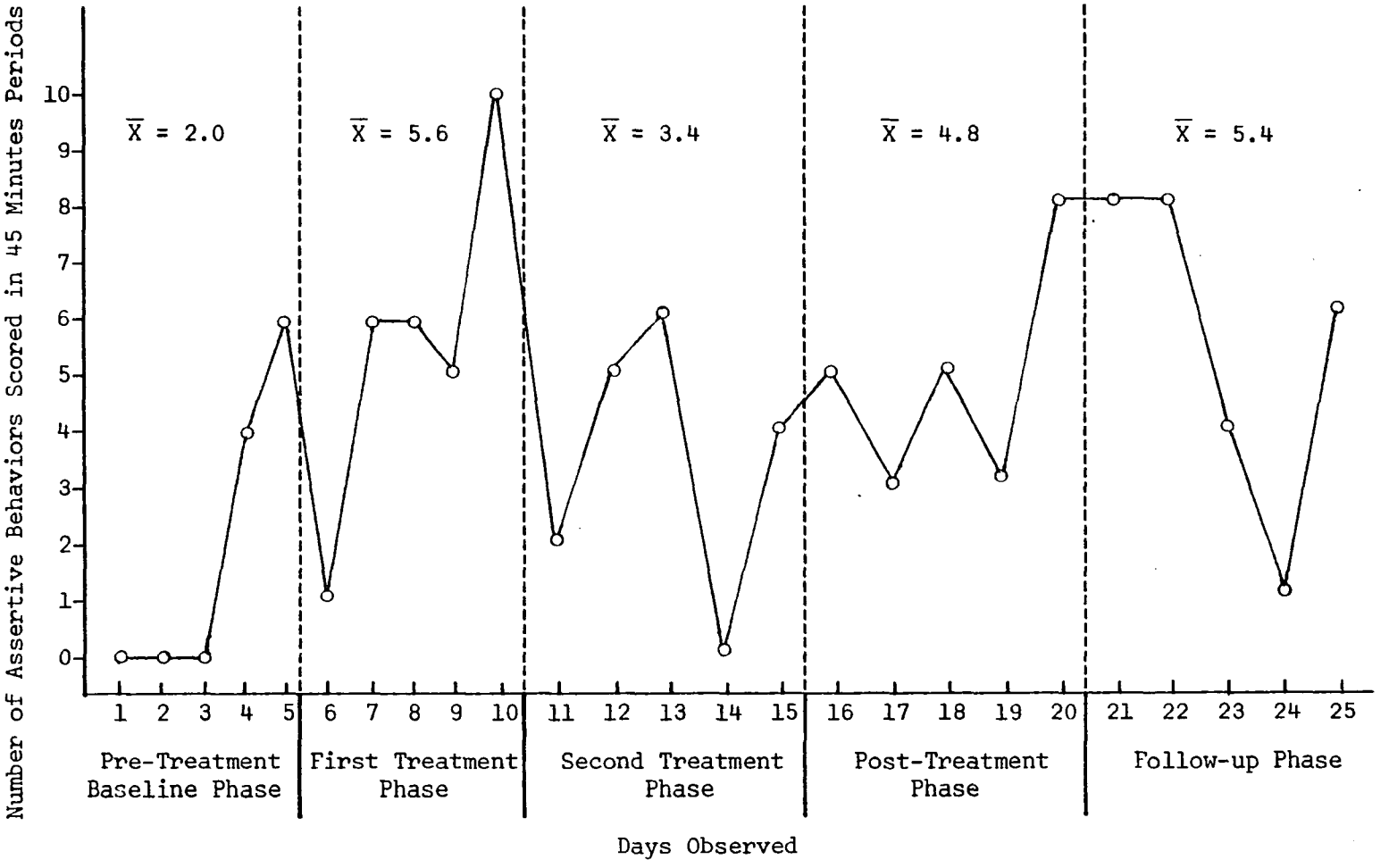

Figure 6. Frequencies and Means of Assertive Behaviors for Subject Number Five

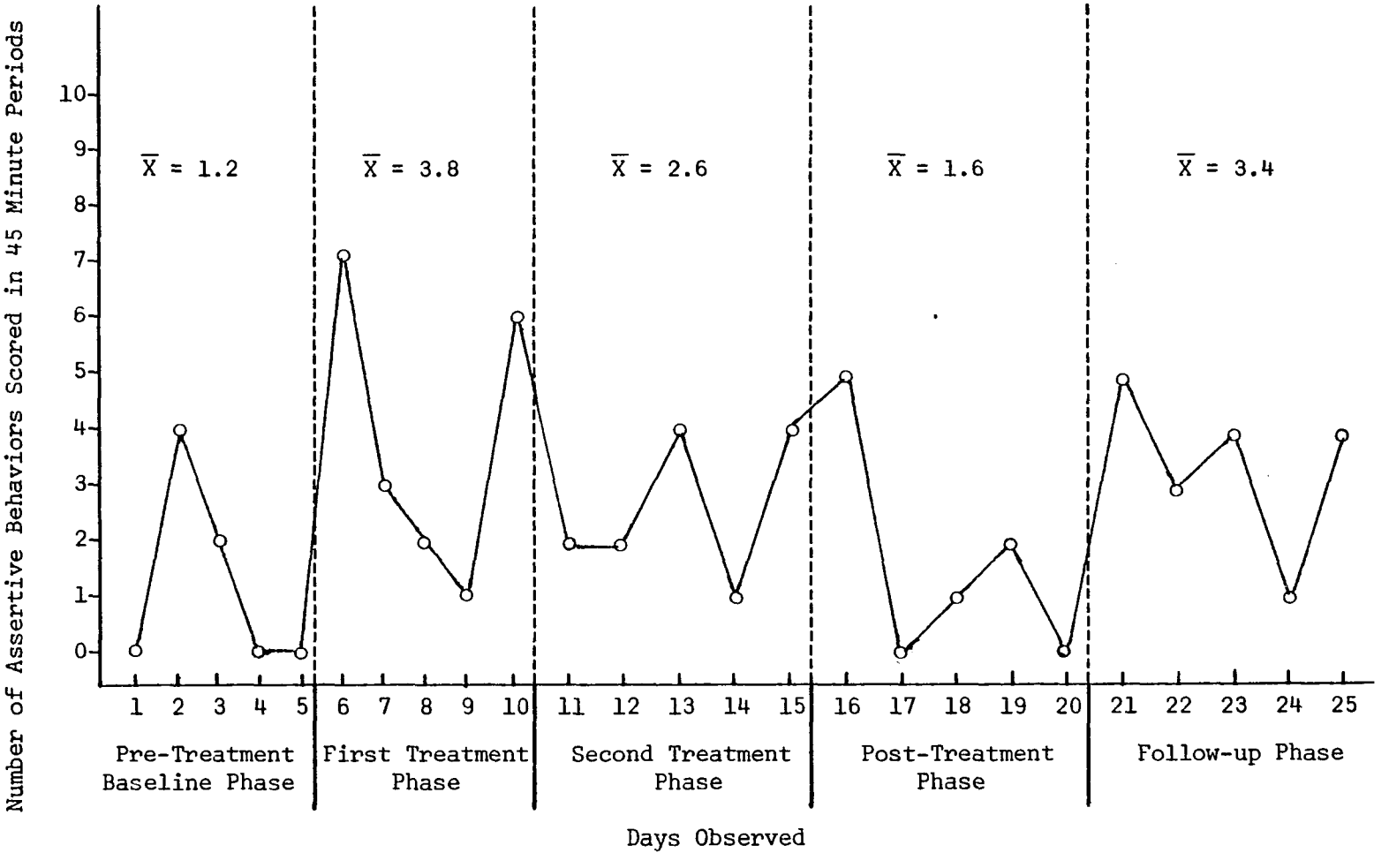

Figure 7. Frequencies and Means of Assertive Behaviors for Subject Number Six

from pre-treatment ($\overline{X}$ = 6.5) to post-treatment ($\overline{X}$ = 9.0); (2) 6.83 ($p < .05$) from pre-treatment ($\overline{X}$ = 6.5) to follow-up ($\overline{X}$ = 13.33); (3) 4.33 (non-significant) from post-treatment ($\overline{X}$ = 9.0) to follow-up ($\overline{X}$ = 13.33).

Thus, the results of behavioral observations indicated: (1) Assertive behavior increased substantially in all six target children once the treatment was introduced. (2) Treatment gains were maintained in the post-treatment and the follow-up phases of the program with two exceptions: Subject number one's gains were not maintained at the follow-up phase, and subject number four's gains were not maintained at the post-treatment phase, although subject number four's gains were evident at the follow-up phase. (3) Differences in means between the pre-treatment to follow-up phases were significant. Differences in means between the pre-treatment to post-treatment and the post-treatment to follow-up phases were not significant. Therefore, the data tend to support the hypothesis.

A point of interest related to Hypothesis 1 was the prediction that the relaxation phase of the treatment would not significantly affect assertive behavior as measured by behavioral observations; however, the data failed to support this prediction. As shown in Figure 1 and Table 2, means from behavioral observation scores for all six target children as a group indicated a 100.00 percent increase from the pre-treatment baseline phase to the first treatment phase.

These findings were consistent for all target children even though there was considerable variability in the amount of increase in mean scores for individual target children.

It should be noted that raw scores for behavioral observations were reported when one observer was recording data and that mean scores (rounded off to the next highest score) were reported when two observers were recording data. (There were never more than two observers present at one time). Recording data by pairs of observers took place on ten separate occasions throughout the study in order to establish the inter-observer reliability. The percentage of agreement between observers ranged from 71.40 percent to 100.00 percent with the mean of the percentages for all comparisons being 80.60 percent. Thus, the percentage of agreement between observers was comparable to what has been found in similar studies.

Effects of the Treatment on All Children in the Study

Hypothesis 2 was that there would be a significant increase in assertive behavior of all children as measured by the F.A.R.A.R.I. Behavioral Rating Scale for Children at both post-treatment and follow-up. The results related to this hypothesis are presented in Tables 3 to 5. Analysis of variance for repeated measures and Tukey post hoc tests were employed to determine differences between pre-treatment and post-treatment, and follow-up scores of the Assertiveness

Table 3. Analysis of Variance Summary of Differences Between Pre-Treatment, Post-Treatment, and Follow-up Means

Dependent Variables	Mean Square	df	F-ratio
Assertiveness	58.64	62	24.89**
Anxiety-Fearfulness	27.83	62	24.20**
Gives Social Reinforcement	48.45	62	10.15**
Impulsivity-Hyperactivity	19.44	62	35.58**
Responsiveness to Social Cues	25.84	62	27.86**
Aggressiveness-Oppositional	13.18	62	32.05**
Total Score (F.A.R.A.R.I.)	600.37	62	79.57**
Nowicki-Strickland	18.14	62	53.30**

** $p < .01$

Table 4. Mean Scores and Standard Deviations for All Children During the Pre-Treatment, Post-Treatment, and Follow-up Phases

Dependent Variables	Pre-Treatment Mean	Pre-Treatment S.D.	Post-Treatment Mean	Post-Treatment S.D.	Follow-up Mean	Follow-up S.D.
Assertiveness	34.24	6.44	37.95	7.85	40.19	7.22
Anxiety-Fearfulness	39.81	5.40	43.38	4.69	44.91	4.16
Gives Social Reinforcement	32.05	7.23	34.71	6.46	36.67	6.18
Impulsivity-Hyperactivity	21.81	4.16	23.86	4.20	25.05	4.13
Responsiveness to Social Cues	34.24	4.25	36.43	4.67	39.33	4.83
Aggressiveness-Oppositional	27.33	3.62	29.29	3.16	30.67	3.20
Total Score (F.A.R.A.R.I.)	189.95	21.53	205.62	22.81	216.57	20.75
Nowicki-Strickland	21.10	3.56	17.86	3.67	16.14	3.85

Table 5. Post Hoc Comparisons of Differences Between Pre-Treatment, Post-Treatment, and Follow-up Means

Dependent Variables	Pre-Post	Pre-Follow-up	Post-Follow-up
Assertiveness	3.71**	5.95**	2.24*
Anxiety-Fearfulness	3.57**	5.10**	1.52
Gives Social Reinforcement	2.67*	4.62**	1.95
Impulsivity-Hyperactivity	2.05**	3.24**	1.19**
Responsiveness to Social Cues	2.19**	5.10**	2.90**
Aggressiveness-Oppositional	1.95**	3.33**	1.38**
Total Scores (F.A.R.A.R.I.)	15.67**	26.62**	10.95**
Nowicki-Strickland	3.24**	4.95**	1.71**

* $p < .05$

** $p < .01$

category of the F.A.R.A.R.I. The results presented in Table 3 show a significant F-ratio ($F = 24.89$, df 2/62, $p < .01$). Table 5 shows a 3.71 ($p < .01$) pre-treatment to post-treatment mean difference, a 5.95 ($p < .01$) pre-treatment to follow-up mean difference, and a 2.24 ($p < .05$) post-treatment to follow-up mean difference. Thus, data tend to support this hypothesis since significant differences were found between mean scores in all phases.

A point of interest related to Hypothesis 2 was the prediction that categories of behavior measured by the F.A.R.A.R.I. other than the Assertiveness category would be positively affected should generalization of treatment occur. The results related to this prediction have also been placed in Tables 3 through 5. Analysis of variance for repeated measures and Tukey post hoc tests were also employed to determine differences between pre-treatment, post-treatment, and follow-up scores of the Anxiety-Fearfulness, Gives Social Reinforcement, Responsiveness to Social Cues and Social Reinforcement, Impulsivity-Hyperactivity, and Aggressiveness-Oppositional categories as well as the Total Score of the F.A.R.A.R.I. The results of the analyses of variance indicate that all F-ratios were found to be significant at the .01 level of confidence. Post hoc tests indicated the following differences between means: (1) 3.57 ($p < .01$) from pre-treatment to post-treatment, 5.10 ($p < .01$) from pre-treatment to follow-up, and 1.52 (non-significant) from

post-treatment to follow-up on Anxiety-Fearfulness; (2) 2.67 ($p < .05$) from pre-treatment to post-treatment, 4.62 ($p < .01$) from pre-treatment to follow-up, and 1.95 (non-significant) from post-treatment to follow-up on Gives Social Reinforcement; (3) 2.05 ($p < .01$) from pre-treatment to post-treatment, 3.24 ($p < .01$) from pre-treatment to follow-up, and 1.19 ($p < .01$) from post-treatment to follow-up on Impulsivity-Hyperactivity; (4) 2.19 ($p < .01$) from pre-treatment to post-treatment, 5.10 ($p < .01$) from pre-treatment to follow-up, and 2.90 ($p < .01$) from post-treatment to follow-up on Responsiveness to Social Cues and Social Reinforcement; (5) 1.95 ($p < .01$) from pre-treatment to post-treatment, 3.33 ($p < .01$) from pre-treatment to follow-up, and 1.38 ($p < .01$) from post-treatment to follow-up on Aggressiveness-Oppositional; (6) 15.67 ($p < .01$) from pre-treatment to post-treatment, 26.62 ($p < .01$) from pre-treatment to follow-up, and 10.95 ($p < .01$) from post-treatment to follow-up on the Total Score of the F.A.R.A.R.I. Therefore, the data supports the prediction of generalization since the findings indicated significant differences between all phases of the program except for the post-treatment to follow-up comparisons on Anxiety-Fearfulness and Gives Social Reinforcement.

Hypothesis 3 was that there would be a significant change in locus of control-of-reinforcement from external to internal for all children as measured by the Nowicki-Strickland Locus of Control Scale for Children at the

follow-up evaluation. The results are presented in Tables 3 through 5. Analysis of variance for repeated measures and Tukey post hoc tests were employed to determine differences between pre-treatment, post-treatment, and follow-up scores of the Nowicki-Strickland. The results of the analysis of variance indicated a significant F-ratio ($F = 53.30$, df 2/62, $p < .01$). Post hoc tests indicated the following differences between means: 3.24 ($p < .01$) from pre-treatment to post-treatment, 4.95 ($p < .01$) from pre-treatment to follow-up, and 1.71 ($p < .01$) from post-treatment to follow-up. These findings clearly indicate that there was an increase in internal locus of control-of-reinforcement and a corresponding decrease in external locus of control-of-reinforcement between all phases of the program. Therefore, the data gave support to Hypothesis 3.

Hypothesis 4 was that the follow-up evaluations would indicate improvement on scores on all measures. The results of the analysis of variance and the Tukey post hoc tests employed to determine differences between pre-treatment, post-treatment and follow-up scores for all six target children as a group as well as all twenty-one children in the study provided support for this hypothesis (see Tables 3 through 5 and the results related to Hypothesis 1 and Hypothesis 2).

Discussion

A review of the literature indicates that desensitization procedures have been successfully employed with children in treating educationally related problems and that a few studies have been conducted in the actual classroom situation (Barabasz 1973, 1975; Bray 1972; Carter and Synolds 1974; Del Valle 1973; Mishra and Thomas 1976). Although the results of research on the application of desensitization procedures to educational problems of children have been quite encouraging, with the exception of two studies (Barabasz 1975; Mishra and Thomas 1976), the procedures have been carried out by outside experimenters and not by the classroom teacher. Therefore, implementation of classroom desensitization by the classroom teacher rather than by an outside expert warrants further study. It was the purpose of this study to develop a program of desensitization which would have a measurable effect on specific behavior of elementary school children and which could be conducted by the classroom teacher. The data generally supported the hypotheses and lended support for the continued use of such programs.

The first hypothesis dealt with the assumption that assertive behavior would significantly increase in target children as a result of the treatment. The rationale for this hypothesis was based on research results which lend

support to the contention that systematic desensitization is an effective procedure in eliminating unadaptive behavior (Bruel 1971; Hampe et al., 1973; Lazarus and Abramovitz 1962; Miller et al., 1972) while self-modeling and self-reinforcement procedures have been shown to result in developing adaptive behavior (Mahoney and Thoresen 1974; Meichenbaum 1971; Thoresen and Mahoney 1974). Therefore, it was postulated that a combination of these procedures within a single treatment program would have a more potent effect than that of either procedure used individually. This hypothesis was supported by the data, and the results are in agreement with other findings (Mishra and Thomas 1976). It was also found that assertive behavior for target children increased during the relaxation training phase of the program. This finding was not expected since the assertive behavior hierarchy was not introduced until the following week when desensitization procedures were conducted. That is, although relaxation training was part of the total treatment program, increases in assertive behavior were not expected until the items of the assertive behavior hierarchy were paired with relaxation. One possible explanation for this finding is that the relaxation procedure was quite novel and the behavioral level of the children may have been elevated more as a result of excitement than as the result of the relaxation training. Another possible explanation of children's increased assertiveness is related to the

children's expectations of the treatment. Since all of the children in the class knew the purpose of the program before the program started they may have reacted as they thought they were expected to react.

It should be noted that there was a considerable degree of variance in recorded student behaviors (see Figures 1 through 7). Sidman (1960) has indicated that the variability in the single-subject design may be due to many possible sources but that this design is amenable to analysis. Although interpretations based on single-subject designs should be made with caution due to variability in baseline data, a fairly strong inference can be made about the relationship between the treatment variables and the dependent variable when a significant change occurs in behavior at the point of the treatment intervention. In the present study, an increase in assertive behaviors of target children was observed following the introduction of the treatment procedures. The behavioral variability in this study may be accounted for by day-to-day changes in the teacher's behavior toward the students, particularly changes in the instructional procedures during the observation periods. Although the teacher tried to maintain similar classroom activities during the observation periods throughout the program, there were exceptions. For example, on day fourteen the normal classroom activities were interrupted by a presentation on dental hygiene by the school hygienist. Another possible explanation is that the

behavioral observers' response patterns may have varied from day to day and may have had an inconsistent effect on the students. It is also possible that the actual presence of the observers in the classroom elicited novel responses from the students. Since the effects related to the observers response patterns and presence in the classroom are more likely to occur at the beginning of the program the observers in the present study collected data for three days prior to the actual beginning of the study in an attempt to minimize these sources of variability. In order to provide a more representative description of the data and to account for the sources of variability, means of scores were presented (see Figure 1 and Table 2) and used to analyze changes between the pre-treatment, post-treatment, and follow-up phases of the program.

The second hypothesis dealt with the assumption that assertive behavior would significantly increase in all children in the classroom as a result of the treatment. The rationale for this hypothesis was the same as that for the first hypothesis, namely that research has indicated that systematic desensitization is an effective procedure for eliminating unadaptive behavior (Bruel 1971; Hampe et al., 1973; Lazarus and Abramovitz 1962; Miller et al., 1972) and that self-modeling and self-reinforcement are effective procedures for developing adaptive behavior. It was further

postulated that a combination of these procedures within a single treatment program would have a more potent effect than that of either procedure used individually. This hypothesis was also supported by the data, and the results were in agreement with other findings (Mishra and Thomas 1976). Since children other than the target children benefited from the treatment program, this finding gives credibility to the practice of treating children with behavior problems in the natural classroom situation. Additional findings of the study indicated that behavioral categories of the F.A.R.A.R.I. other than the Assertiveness category were significantly affected by the treatment. This finding is encouraging in that it has implications for the effectiveness and efficiency of the program for a broad class of behaviors. That is, a single treatment program designed to reach many target behaviors would appear to be more practical, effective, and economical than many programs for single classes of behaviors.

The third hypothesis dealt with the assumption that locus of control-of-reinforcement would significantly change from external to internal at the follow-up evaluation. The rationale for this hypothesis was based on studies using procedures similar to the present study which indicated continued improvement and delayed effects for certain behaviors that were significant at follow-up but not at the end of a short treatment period (Freedenberg 1975). Since the treatment period was relatively short and because the assessment

device was basically a measure of "traits" rather than specific situational variables, it was postulated that complete treatment effects for self-control would not be realized until the subjects had been exposed to many situations in which they would practice their new skills. That is, unless self-control skills were learned which generalized to situations other than those worked on during the treatment there would be no significant changes expected on this measure. The results indicated that the shift in locus of control-of-reinforcement reached a significant level in the hypothesized direction at both the post-treatment phase and the follow-up phase of the study. Thus, the effects of the treatment on internal locus of control-of-reinforcement exceeded the expectations of the researcher.

The fourth hypothesis dealt with the assumption that follow-up evaluations would indicate continued improvement on all measures. The rationale for this hypothesis was based primarily on research with adult subjects which employed desensitization or relaxation procedures from a self-control orientation (Goldfried 1971; Goldfried and Trier 1974). These studies lend support to this hypothesis by finding continued improvement after termination of treatment as well as maintenance of treatment gains; therefore, it seemed reasonable to think that similar trends could be expected after employing similar strategies with children. At least one study (Freedenberg 1975) using desensitization with children

clearly found continued improvement after treatment had terminated, although self-control procedures were not built into the program. The results of the present study supported this hypothesis. The findings that follow-up evaluations indicated continued improvement on all measures suggest that subjects continue to utilize treatment procedures after treatment has been terminated when approached from a self-control orientation rather than from a traditional approach which views the treatment as an end in itself rather than as a skill which can be used in the future. Indeed, even if the target behaviors are not evident at follow-up evaluations, they still may be in the child's repertoire of behaviors and may be evoked when the situation calls for them.

CHAPTER 5

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The present study attended to problems which have not been considered by more traditional studies or which appeared to warrant further study. They are: (1) Although desensitization had been used in the natural classroom situation, procedures were lacking for the classroom teacher to implement the programs in regular day-to-day activities. (2) Although several studies have focused on the elimination of undesirable or unadaptive behavior, few studies have focused on the development of desirable or adaptive behavior. The present study focused on the development of adaptive behavior (assertive behavior and self-control) as well as the elimination of unadaptive behavior (non-assertive behavior). (3) Although systematic desensitization has been employed with adults from a self-control orientation, similar procedures for children had not been reported.

Conclusions

The major purpose of this investigation was to determine the effectiveness of systematic desensitization in developing assertive behavior and self-control in elementary school children in the natural academic environment when

conducted by the regular classroom teacher. The results clearly indicated positive effects of the treatment on the target children as well as on all other children in the classroom. This clearly suggests that children with behavior problems similar to those under investigation should not necessarily be removed from the context of the group situation. On the contrary, their treatment may have desirable effects on the rest of the group when the treatment is implemented in the natural group setting. This finding may have special implications for school personnel involved in the delivery of psychological services as well as for classroom teachers who are involved with children in instructional work.

Another positive outcome of the study concerns the use of teachers and other school personnel for helping children develop social and academic skills. Since the present study successfully used the classroom teacher as an experimenter, it is suggested that the use of the classroom teacher in implementing treatment programs may actually facilitate their effects. Actually, the treatment program may be more effective and the research findings more valid when the program is conducted by the teacher than when it is implemented by the researcher who is quite foreign to the students. Thus, the benefits of this approach can be argued for the teacher as well as for the students. Indeed, if such techniques are effective, teachers are more likely to incorporate them into their teaching styles.

In conclusion, perhaps the most important implication for behavioral research is the movement from research and treatment in the classroom being conducted by the outside expert to being conducted by the classroom teacher in consultation with the researcher. Since the outcome of this study was generally quite positive, it seems reasonable to assert that the use of a desensitization program by classroom teachers can be beneficial. If this assertion is accepted, the implications for the elementary school are many.

Implications

There are several practical implications for school personnel. First, there are implications for school counselors or school psychologists working in elementary school settings. The primary implication is that the treatment procedures can be taught through the process of consultation with teachers. This appears realistic since the counselor or psychologist is in a position to provide training for teachers in the use of these procedures as well as to monitor the success of their programs and to provide support and encouragement. Indeed, the counselor or psychologist can teach the classroom teacher procedures which can be used to help specific students change their unadaptive behaviors; such procedures not only result in changes in identified students but their effects can also be generalized to other students. The benefits of treating children in the group in the natural

classroom environment are as follows: (1) Individual children are not singled out (stigmatized or labeled) as having special problems which require special attention. Indeed, children may feel embarrassed or different if singled out from the rest of the students in class. (2) The group is a more natural and realistic situation for solving problems. This is especially true when the behaviors under study are of an interpersonal nature and have an effect on others. (3) Children in the class other than the identified children may also benefit from the treatment program. They may learn strategies for coping with problems which serve as preventive measures for later difficulties or problems in life. Indeed, these children may be influenced as much by the changes in the behavior of the target children as by the treatment itself. (4) Conducting the treatment in the natural environment may be much more efficient in respect to time, money, personnel, and effectiveness. Indeed, implementation of behavioral change techniques by the classroom teacher seems desirable since the school counselor or psychologist may not have time to work with all of the children who need direct assistance. (5) The teacher as well as the children may benefit from this approach since he or she learns new guidance techniques and strategies for both remediation and prevention of children's problems.

Secondly, there are implications for counselor education, teacher education, and parent education. The

assumption being made is that adults often lack information regarding what to do with children displaying unadaptive behaviors and that there is a need for educational programs designed to provide this information. An educational approach for developing assertiveness has been suggested by Alberti and Emmons (1975); an educational approach for developing self-control has been suggested by Thoresen and Mahoney (1974). Educational implications regarding self-control training for children is clearly implied in the following statement by Thoresen and Mahoney (1974, p. 2):

> A major goal of training in many cultures is to enable persons to direct, maintain, and coordinate their actions without continuous surveillance. The ability to control one's own actions in the absence of immediate external constraints--to postpone or forego gratifications, to endure avoidable pain, to direct oneself--is typically thought to characterize an intelligent person. Self-control is often considered the ultimate mark of socialization. It is a behavior pattern seen very rarely in infrahumans and sometimes rarely even in humans.

Thoresen and Mahoney (1974) have further discussed the preventive and social aspects of self-control training and suggested that behavior change through self-regulation can take place in the natural environment by teaching behavioral self-control to social groups, such as school classes and parent organizations, through different types of courses, seminars, and workshops. They suggest that a large number of parents and adults could be reached by providing instruction in local adult educational settings and that counselors would

have the major task of organizing and presenting courses and workshops. Although Thoresen and Mahoney are primarily concerned with adult education regarding self-control procedures, this approach appears equally beneficial as a means of providing counselors, teachers, parents, and other adults with information in order to help children develop self-control.

In respect to counselor education, it appears that the procedures employed in this study could easily be incorporated into the existing course work of most counselor training programs. If this were the case, it seems that the counselor would be able to help the classroom teacher implement the procedures after developing an appropriate consulting relationship and modifying the procedures to fit the particular situation.

Recommendations for Further Research

The primary limitations of this study are directly related to the validity of the research designs employed. In the case of the single-subject design used to assess the treatment effects on target children, the threats to internal validity appear well controlled and should present no major problems in interpreting the results of the study; however, external validity considerations restrict generalization of the results. In the case of the one-group pretest-posttest design used to assess treatment effects on all children, the threats to internal validity as well as to external validity

limit the conclusions. The specific threats are the possible sensitization effects of the Nowicki-Strickland, reaction effects to the subject's consent form, and reaction effects to the presence of observers in the classroom. Since the teacher and the children were volunteer subjects and may have had characteristics significantly different than could be expected from a non-volunteer sample of the population at large, generalizability of the results of the study is restricted to populations similar to the one employed in this particular study. Thus, the first suggestion for future research concerns the research designs employed. It is suggested that a control group be included in the one-group pretest-posttest design in order to control for the threats to validity. Additionally, multiple replications of the study employing larger samples are needed before conclusive generalizations can be made about the effectiveness of the treatment. It is especially important to investigate the role which the teacher plays in the effectiveness of the procedures.

Another suggestion concerns the treatment procedure itself. In order to debrief the subjects and to answer any questions after the program was completed, the researcher interviewed the classroom teacher and the children who participated in the study. This interview resulted in some suggestions and implications for possible changes in the

procedures: (1) Although most of the children were quite enthusiastic and reported that they had enjoyed the program, many of the children indicated that the relaxation tape recording was too repetitive, too slow, and too long. The children also reported that they learned the relaxation procedures quite rapidly and with little difficulty. The relaxation exercises may have actually diminished the effectiveness of the program if they were too long and the children became bored; therefore, it appears that the relaxation exercises might be just as effective if they took only five to ten minutes to complete rather than fifteen minutes. (2) Another suggestion for the relaxation procedures is the development of exercises which could be implemented while the children were sitting at their desks. This would appear to be less disruptive to the natural flow of classroom activities and should take less time than procedures requiring the children to lie on the floor. (3) Finally, most of the children reported using the relaxation and desensitization procedures outside of the classroom situation; therefore, it is suggested that future studies monitor these procedures in other settings.

A final suggestion for future research concerns the inclusion of measures of academic performance. This study appears to have opened up avenues for studying the relationship of actual academic behavior to socially relevant

behaviors. If such behaviors as assertiveness and self-control are found to be positively correlated with traditional indicators of academic potential, such as intelligence and achievement, it appears probable that their development would improve academic performance. On the other hand, the development of assertiveness and self-control might be considered a worthy goal for the child's growth and development independently of academic concerns. In any event, it seems likely that learning may change as a result of changes in children's behavior from non-assertiveness to assertiveness and from external control to internal control or self-control. Therefore, it is suggested that future studies include measures of academic performance during the pre-treatment, post-treatment, and follow-up phases of the research in order to determine the effects of the treatment on these variables. In conclusion, it is hoped that those individuals interested in this particular area of study will consider the problems presented in this study as areas of further research.

APPENDIX A

BEHAVIORAL OBSERVATION INSTRUMENT

Code	Categories
V	Volunteers information: Includes offering suggestions and/or information during class discussion without being personally asked; expresses opinion even if different from group. Excludes responses to questions directed toward target child. Score: (1) who knows answer to . . . . (2) spontaneous offer of information (even if incorrect) No Score: (1) Johnny, do you know . . . .
?/T	Initiates contact with the teacher in relation to academic tasks: Includes asking for help, information, and feedback to academically related questions. Score: (1) asks question in form that requires answer from teacher (2) child initiates conversation with teacher--only 1st statement scored for each conversation.
?/P	Initiates contact with peers in relation to academic tasks: Includes asking academically related questions, requesting material, and requesting assistance. Score: (1) task appropriate questions--or task related conversation only if target child initiates. Score 1st statement only of each discrete conversation--(e.g., what page are we on). No Score: (1) child initiates conversation which is obviously off-task as perceived by observer (e.g., who won football game).
+S	Positive self-statement: Includes talking positively about self. Score: (1) statement such as: "I can do that." "I know how." "I did a good job." "I am good at that." No Score: (1) tentative statements--"I'm not sure if I can." "Maybe I could."

Code	Categories
-S/T	Defends self verbally against unwarranted criticism by teachers or adults.
-S/P	Defends self verbally against unwarranted criticism by peers. Score: (1) this category is scored only if observer clearly knows that target child was not in the wrong. Score 1st statement in defense of each separate allegation. No Score: (1) If observer is unsure if child was in the wrong.

DATE: _____ PAGE_____ OBSERVER _____

TIME: _____

SETTING: _____

_____

1)	V	+S	V	+S	V	+S	2)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
3)	V	+S	V	+S	V	+S	4)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
5)	V	+S	V	+S	V	+S	6)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
1)	V	+S	V	+S	V	+S	2)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
3)	V	+S	V	+S	V	+S	4)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
5)	V	+S	V	+S	V	+S	6)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
1)	V	+S	V	+S	V	+S	2)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
3)	V	+S	V	+S	V	+S	4)	V	+S	V	+S	V	+S
	?/J	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P
5)	V	+S	V	+S	V	+S	6)	V	+S	V	+S	V	+S
	?/T	-S/T	?/T	-S/T	?/T	-S/T		?/T	-S/T	?/T	-S/T	?/T	-S/T
	?/P	-S/P	?/P	-S/P	?/P	-S/P		?/P	-S/P	?/P	-S/P	?/P	-S/P

SUBJECT	V		?/T		?/P		+S		-S/T		-S/P	
1												
2												
3												
4												
5												
6												
TOTALS												

APPENDIX B

F.A.R.A.R.I. BEHAVIORAL RATING SCALE FOR CHILDREN*

* From "F.A.R.A.R.I. Behavioral Rating Scale for Children" by J. M. Baker, R. Burkholder and R. Davis, Tucson, Arizona: Pima County Special Services Cooperative, 1975. Reproduced by permission from Jean M. Baker.

Teacher's Name _____ School _____

Child's Name _____ Age _____ Grade _____ Sex _____

Father's Occupation _____ Mother's Occupation _____

Ethnic Background _____ Dominant Language _____

Please rate the child on each item by placing a check mark in the column which best describes the frequency with which the child displays that behavior. Consider the child's usual behavior as you have observed it during the time he/she has been in your classroom.

	1	2	3	4	5
	Never	Rarely	Occasionally	Frequently	Very Frequently
1. Volunteers information or suggestions during class discussions.					
2. Expresses own opinions even when they differ from those of the group.					
3. Asks academically related questions of peers.					
4. Asks academically related questions of teachers.					
5. Initiates contact with teacher, for example, by requesting help or asking for approval.					
6. Initiaties contact with peers in relationship to academic tasks.					
7. Initiates contact with peers in non-academic situations (e.g. on the playground).					
8. Tries to obtain information independently from books and other materials					
9. Talks positively about self and/or accomplishments.					
10. Defends self verbally against unfair criticism or mistreatment from peers.					
11. Defends self verbally against unfair criticism or mistreatment from teacher or other adults.					
12. Shows confidence in own abilities by making statements such as "I know how," "I can do that," etc.					

	Never	Rarely	Occasionally	Frequently	Very Frequently
13. Cries in the classroom.					
14. Cries on the playground.					
15. Makes statements such as "I can't do that," or "I don't know how."					
16. Makes statements such as, "I'm no good at that."					
17. Remains alone on the playground.					
18. Appears unusually disturbed when teased or criticized by peers.					
19. Appears unusually disturbed by disapproval or criticism from adults.					
20. Hesitates to begin new activities.					
21. Appears unusually concerned about making mistakes.					
22. Complains to teacher about peers or assignments.					
23. Complains to teacher about physical symptoms (e.g. stomach ache, headache, eyes hurt, etc.)					
24. Shows physical symptoms such as trembling, hair twisting, nail biting, excessive fidgeting.					
25. Makes positive comments to peers.					
26. Makes positive comments to adults.					
27. Expresses thanks and appreciation to others.					
28. Expresses affection or friendship (verbally or physically) to teacher and other adults.					
29. Expresses affection or friendship (verbally or physically) to peers.					
30. Expresses concern or compassion for others.					
31. Offers to help peers (e.g. with academic work, projects or on the playground.					
32. Talks positively about peers.					
33. Talks positively about adults.					
34. Shares his materials and possessions with others.					
35. Seems pleased by happiness of others.					

	Never	Rarely	Occasionally	Frequently	Very Frequently
36. Begins an activity before instructions have been completed.					
37. Begins an activity before he fully understands what to do.					
38. Interrupts others.					
39. Works very rapidly making careless mistakes.					
40. Makes inappropriate or irrelevant comments.					
41. Unable to stay seated for extended periods of time.					
42. Blames other people or circumstances for own mistakes or problems.					
43: Responds positively to praise and attention from teacher and other adults.					
44. Responds positively to social overtures from peers.					
45. Complies quickly with teacher's verbal instructions in one-to-one or small group teaching situations.					
46. Complies quickly to teacher's verbal instructions in large group teaching situations.					
47. Complies with peers' suggestions or requests.					
48. Seems to understand (i.e. "be in touch with") whatever is going on in the classroom. (Does the right thing at the right time.)					
49. When *shown* how to do something is able to understand quickly.					
50. Makes appropriate comments during class discussions.					
51. Answers appropriately when asked questions by adults.					
52. Answers appropriately when asked questions by peers.					
53. Appears to be a good listener (i.e. makes appropriate responses to whatever is going on in class).					

	Never	Rarely	Occasionally	Frequently	Very Frequently
54. Fails to obey rules or follow directions.					
55. Says things such as "I won't do it," "I don't have to," or "You can't make me."					
56. Physically abuses peers (i.e. hits, kicks, pokes, etc.).					
57. Verbally abuses peers or teacher.					
58. Talks loudly and disruptively in the classroom.					
59. Destroys or defaces property.					
60. Has temper tantrums (e.g. screams, throws things, kicks).					

SUMMARY OF SCORES

CATEGORIES	SCORES
Items 1-12	
Items 13-24	
Items 25-35	
Items 36-42	
Items 43-53	
Items 54-60	
Grand Total	

APPENDIX C

NOWICKI-STRICKLAND LOCUS CONTROL SCALE FOR CHILDREN*

* From "A locus of control scale for children" by S. Nowicki and B. R. Strickland, Journal of Consulting and Clinical Psychology, 1973, 40(1), 148-154. Reproduced by permission from Stephen Nowicki, Jr.

Item	Response Yes	No
1. Do you believe that most problems will solve themselves if you just don't fool with them?		
2. Do you believe that you can stop yourself from catching a cold?		
3. Are some kids just born lucky?		
4. Most of the time do you feel that getting good grades means a great deal to you?		
5. Are you often blamed for things that just aren't your fault?		
6. Do you believe that if somebody studies hard enough he or she can pass any subject?		
7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?		
8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?		
9. Do you feel that most of the time parents listen to what their children have to say?		
10. Do you believe that wishing can make good things happen?		
11. When you get punished does it usually seem its for no good reason at all?		
12. Most of the time do you find it hard to change a friend's (mind) opinion?		
13. Do you think that cheering more than luck helps a team to win?		
14. Do you feel that it's nearly impossible to change your parents' mind about anything?		
15. Do you believe that your parents should allow you to make most of your own decisions?		
16. Do you feel that when you do something wrong there's very little you can do to make it right?		
17. Do you believe that most kids are just born good at sports?		
18. Are most of the other kids your age stronger than you are?		
19. Do you feel that one of the best ways to handle most problems is just not to think about them?		

Item	Response Yes	No
20. Do you feel that you have a lot of choice in deciding who your friends are?		
21. If you find a four leaf clover do you believe that it might bring you good luck?		
22. Do you often feel that whether you do your homework has much to do with what kind of grades you get?		
23. Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?		
24. Have you ever had a good luck charm?		
25. Do you believe that whether or not people like you depends on how you act?		
26. Will your parents usually help you if you ask them to?		
27. Have you felt that when people were mean to you it was usually for no reason at all?		
28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?		
29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?		
30. Do you think that kids can get their own way if they just keep trying?		
31. Most of the time do you find it useless to try to get your own way at home?		
32. Do you feel that when good things happen they happen because of hard work?		
33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?		
34. Do you feel that it's easy to get friends to do what you want them to?		
35. Do you usually feel that you have little to say about what you get to eat at home?		
36. Do you feel that when someone doesn't like you there's little you can do about it?		
37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you?		

Item	Response Yes	No
38. Are you the kind of person who believes that planning ahead makes things turn out better?		
39. Most of the time, do you feel that you have little to say about what your family decides to do?		
40. Do you think it's better to be smart than to be lucky?		

NAME_____ DATE_____

APPENDIX D

LETTERS TO PARENTS AND
U. OF A. HUMAN SUBJECTS COMMITTEE CONSENT FORMS

March 16, 1976

Dear Parent:

My name is Carroll R. Thomas, and I am a doctoral student at The University of Arizona in the Department of Counseling and Guidance. Last fall Dr. Shitala P. Mishra of the Department of Educational Psychology and myself conducted a project at Los Ranchitos Elementary School involving the students in Mrs. Moore's third grade classroom and the results were very encouraging. This spring we plan to conduct a similar project in Mrs. Duggan's classroom in which your child is a student. Since your child is in this class and because we believe that this program will be of direct benefit to him or her, we are asking permission for your child to participate in this project. The attached form will explain what we plan to do and has a place for your signature. If you should have additional questions please contact me at 325-7594 or Dr. Mishra at 884-2478.

This project has been approved by Sunnyside School District and The University of Arizona Human Subjects Committee.

Please have your child return the consent form by Friday, March 19. Thank you for your cooperation.

Sincerely,

Carroll R. Thomas

Subject's Consent for Parents

The purpose of this project is to evaluate a program designed to help children develop courage, self confidence, and self-control in situations at school which may be discouraging or difficult for them. This program is also intended to provide the teacher with skills to help children develop these qualities.

The procedures involved in the program will consist of having the children relax by listening to a tape recording. Their teacher will then have them imagine difficult situations related to the classroom, give them instructions on how to overcome these difficulties, and give them instructions on how to encourage themselves in these situations. The relaxation tape has been used by many children and their parents and has been successful in helping children relax. This tape consists of instructions which help children tell the difference between tension and relaxation, instructions teaching children how to relax, and soft music in the background. All of these procedures will take approximately 30 minutes each day for approximately two weeks. The teacher and the children will fill out one questionnaire each to help determine if the program is effective. The children will also be observed for the same purpose. The children's questionnaire takes approximately 10 minutes to fill out and will be completed on three occasions. The duration of the project will be approximately eight weeks.

All information gathered on the children will be done by a coding system in which the results are known only by those persons who are responsible for the project, Dr. Shitala P. Mishra and Mr. Carroll R. Thomas. This will be done by assigning each child a number with only Dr. Mishra and Mr. Thomas knowing which child has which number. After this information has been collected the coding system and the questionnaires will be destroyed. No child's individual scores will be reported in such a way that the individual child's identity will be known.

Previous programs using similar procedures have shown that children have been helped, and they have not reported any negative or harmful physical, psychological, or sociological effects. If this program is shown to be successful in helping children become more courageous, self-confident, and self-controlled it appears that it will have a beneficial effect for our society.

I have read the above "Subject's Consent." The nature, demands, risks, and benefits of the project have been explained to me. I understand that I may ask questions and that my child is free to withdraw from the project at any time without prejudice. I hereby give my consent for my child to participate in the project.

Parent's Signature_____Date_____

Investigator's Signature_____Date_____

Investigator's Signature_____Date_____

Subject's Consent

The purpose of this project is to evaluate a program intended to help you and your classmates develop courage, self-confidence, and self-control in situations at school that may be discouraging or difficult. This program is also intended to provide your teacher with new ways to help you and your classmates develop these qualities.

The steps involved in this program will consist of having you and your classmates relax by listening to a tape recording. This tape has been used by many children and their parents and has been successful in helping children relax. This tape has instructions which will help you and your classmates tell the difference between tension and relaxation, instructions on how to relax, and soft music in the background. Your teacher will then have everyone imagine difficult situations in the classroom, she will give instructions on how to handle these situations, and then she will give instructions on how to encourage yourselves in these situations. This program will take about 30 minutes each day for 2 weeks. You and your teacher will fill out one questionnaire each about you to find out if the program helped. You and your classmates will also be observed for the same purpose. The questionnaire you fill out will take about 10 minutes and will be filled out on three different occasions. The project will last for about eight weeks.

The results from all of the information gathered on you and your classmates will be seen only by Dr. Shitala P. Mishra and Mr. Carroll R. Thomas who are responsible for the project. This will be done by assigning each student a number with only Dr. Mishra and Mr. Thomas knowing which child has which number. After the information is collected the student's numbers and questionnaires will be destroyed. No information collected on you or your classmates will be reported in such a way that someone could know who you are.

Other programs similar to this one have shown that children have been helped, and they have not shown any harmful effects. If this program is shown to be successful in helping you and your classmates become more courageous, self-confident, and self-controlled it appears that it will help other children and our society.

I have read the above "Subject's Consent." The nature, demands, risks, and benefits of the project have been explained to me. I understand that I may ask questions and that I am free to withdraw from the project at any time without prejudice. I hereby give my consent to participate in the project.

Child's Signature_____Date_____

Investigator's Signature_____Date_____

Investigator's Signature_____Date_____

APPENDIX E

TEACHER'S INSTRUCTIONS FOR RELAXATION AND ASSERTIVE EXERCISES

Lesson Plan I

I. Introduction of Procedures to Class

A. Have a short discussion about being afraid, discouraged, or unassertive (not standing up for self, etc.).

B. Explain that the purpose of the procedures is to teach skills which will help them to develop courage, self-confidence, and self-control in handling problem situations.

C. Present the procedures as a natural process of daily classroom activities.

D. Make the exercises fun; use your imagination.

II. Relaxation Exercises

A. Play the relaxation tape to the class and model the exercises.

III. Visualization or Imagery Practice

A. Following the relaxation sequence have the children remain relaxed with their eyes closed and ask them to imagine that they are in their favorite place or situation where they feel most relaxed, free from tension, secure, pleasant, peaceful, good, etc.

B. Describe the following scene as an example situation and have the children create an equivalent desert scene:

You are in the county by a calm lake; you can see the ripples slowly on the water; the wind is slightly rustling in the leaves; the sun is shining and you can feel its warmth on your face; there are some birds chirping and lots of green, soft grass. Everything is very quiet and calm and you feel calm and relaxed.

C. Ask the children about what they visualized in their minds and how they felt.

D. If the children have problems with imagery help them by giving extra practice by asking them to visualize one thing at a time which is more concrete or tangible until they have the object fixed in their minds.

IV. Instructions for Modified Relaxation Exercises

A. Encourage the children to practice the standard relaxation exercises and/or the following modified relaxation exercises while they are at home and in other situations, particularly, when in stressful situations and to help them fall asleep.

B. Ask the children to follow three basic steps in the modified relaxation exercises:

1. Take a deep breath and suddenly let go.
2. Tell yourself to be calm and relax.
3. Think of something very pleasant for a few seconds (e.g., scenes learned in imagery practice).

Lesson Plan II

I. Relaxation Exercises

A. Play the relaxation tape to the class and model the exercises.

B. Following the relaxation sequence have the children remain relaxed with their eyes closed as you begin the subsequent procedures.

II. Present Situations (designated by 1-12 on the hierarchy)

A. Have the children picture the first situation on the hierarchy while concentrating on staying relaxed for approximately 10 seconds.

B. Have the children stop picturing the situation and concentrate on relaxing for approximately 20 seconds.

C. Repeat steps A and B three times.

III. Present Self-Modeling Statements (designated by a. on the hierarchy under each situation)

A. Have the children picture themselves successfully handling the situation with appropriate assertive behavior for approximately 20 seconds.

IV. Present Self-Reinforcement Statements (designated by b. on the hierarchy under each situation)

A. Have the children picture saying positive statements to themselves for approximately 20 seconds.

V. Go to the next situation on the hierarchy and repeat steps under II., III., and IV.

VI. Complete three situations from the hierarchy during each session.

VII. Have a short discussion about the children's experiences after each session.

VIII. Have the children think of three situations which are not on the hierarchy that they would like to work on, develop self-modeling statements and self-reinforcement statements for each situation with the children's help, and add these items to the hierarchy to be presented on the last day of the exercises.

Children's Relaxation Exercises

Hello! Today I am going to teach you how to relax. First, find a comfortable place to lie down where you will not be disturbed. Be sure that your clothing is not tight. If it is, you may wish to loosen them. Perhaps you may wish to take off your shoes.

Now, let's start our new adventure. Keep your eyes open for now. The first thing I want you to understand is how it feels to be tense. Make your hands into fists, squeeze them as hard as you can, feel how tight they are. This is called tension. And we may say that our arms feel tense. Let's count to 5 as we squeeze them as hard as we can. 1, 2, 3, 4, 5, now let go. Feel the tightness leave your arms. It feels good doesn't it. This is how it feels to be relaxed.

Now, I am going to teach you how to make your whole body feel relaxed, just like your arm is. Being relaxed is such a nice feeling, it is just like floating on a cloud in the sky. To begin to learn to relax, tighten just one part of your body at a time, leaving the rest of your body as limp as a rag doll. When I tell you to tighten just one part of your body, tighten it as much as possible but leave every other part limp. When I tell you to tighten a part of your body, I will count from 1 to 5 and you will keep that part of your body tense, until I reach 5. Now let's begin.

Keeping the rest of your body relaxed, wrinkle up your forehead as tight as you can. Do you feel the tension? Hold it. 1, 2, 3, 4, 5, relax and let go. Smooth out all the wrinkles in your forehead. Take a deep breath, hold it, now let it go slowly.

Now close your eyes as tightly as you can, make them tighter and tighter, keep all the rest of your body relaxed. Hold it. Feel the tension. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it, now let go.

Now close your mouth, push your tongue hard against the roof of your mouth. Feel the tension in your chin. Hold it. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it, now let go.

Now think about the muscles in your cheeks, keep the rest of your body relaxed, but open your mouth as wide as you can. Feel the tension. Hold it. 1, 2, 3, 4, 5, relax, and let go. Take a deep breath, hold it, now let go.

Lift your head just a little off the pillow. Touch your chest with your chin. Feel the tension in your neck. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it, now let go.

Okay, think about your forehead, your eyes, and your cheek muscles, make sure they are still relaxed. Have you let go all the tension? That's good. Now lift your shoulders up as high as they will go. Hold it until I count to 5. 1, 2, 3, 4, 5, relax and let go, now take a deep breath, hold it, now let go.

Now keep your face, neck, and shoulders relaxed, arch your back, just as though there were a pillow under it. Hold it. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it, now let go.

Stretch your arms out by your sides and press your hands down into the floor, down as hard as they will go. Feel the tension in your shoulders. Hold it. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it, now let it out slowly. Relax your whole body.

Now while your face, chest, and shoulder muscles stay limp, make each hand into a fist. Lift your arms a little way off the bed and hold them. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it, let it out slowly.

Now let your arms flop at your sides and relax them completely. Now check your face, neck, and chest muscles. Make sure they are still relaxed. If not, let them go again. Soon you will be able to tell when you have tension in any part of your body, and you will learn that you can always relax and let go of the tension that you may find in any or all parts of your body.

Now, while the rest of your body stays limp, tighten up your stomach muscles. Try to make your stomach touch your backbone. Hold it. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it, now let go completely. Can you feel how wonderful it feels, when all the tension leaves your body. Relaxing and letting go is easy, and it gets easier each time you do it.

Now tighten the muscles in your legs above the knee, get them tight. Hold it. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it and let go.

Now keep the rest of your body completely relaxed except for your heels, press them down as hard as you can as though you were trying to make them go through the floor. Hold it. 1, 2, 3, 4, 5, relax your legs and let your body go limp. Take a deep breath, hold it, and then let go.

Now pull your toes toward your face as hard as you can. Feel the tension in the back of your legs. Hold it. 1, 2, 3, 4, 5, now relax and let go. Take a deep breath. Hold it. Now let go.

Now keep your body limp, but push your toes away from your face. Pretend you are trying to push the wall away with your toes. Hold it. 1, 2, 3, 4, 5, relax and let go. Take a deep breath, hold it and let go. Feel how much more relaxed your feet are.

Now think about your face, shoulders, your chest, your stomach, your arms, and your legs, and make sure each part is relaxed. You'll enjoy a good feeling each time you do these exercises. Each time you do them you will learn to be more and more relaxed.

Now the next time you begin to feel upset, remember how you feel right now. When you want to relax think about your forehead muscles, take a deep breath and let go of all the tension you found in your forehead. Letting go helps you feel more peaceful and calm. So if you do get upset or angry, remember to relax and let go. Listen to the music until it stops.

Assertive Behavior Hierarchy for Classroom Situations

1. Picture your teacher asking the class a question. You know the correct answer but you are afraid to raise your hand and give the answer.

   a. Picture yourself calmly raising your hand and confidently giving the answer.

   b. Picture saying to yourself, "Wow! I really did it. That was a good answer and I really helped others to learn." Imagine yourself having all kinds of good warm feelings.

2. Picture your teacher directly asking you a question in class. You do not give an answer because you are afraid of making a mistake and looking foolish.

   a. Picture yourself calmly giving the best answer you can think of or saying that you don't know the answer.

   b. Picture saying to yourself, "Good going. I don't have to know all the answers, be right all the time, or be perfect for people to accept me. I can really learn from my mistakes. Wow! It sure feels better to look at things this way."

3. Picture yourself taking part in a class discussion without being asked for your opinion. You think that you have some good ideas but you are not very confident about expressing them.

   a. Picture yourself confidently taking part in the class discussion and saying what you think.

   b. Picture saying to yourself, "I'm really on the right track now. It sure feels good to say what I think, because it allows me to share with the group."

4. Picture yourself taking part in a class discussion after being personally asked for your opinion. You feel like you have been put on the spot and are not sure about what to say.

   a. Picture yourself confidently stating your opinion or saying that you have no opinion on the subject.

b. Picture saying to yourself, "I really handled that nicely. Keep it up. It feels good to be part of the group even if I don't have an opinion."

5. Picture yourself taking part in a class discussion. Your opinion is quite different from all of the other children and you are afraid to speak up.

   a. Picture yourself calmly and confidently expressing your opinion even though it is different from the other children.

   b. Picture saying to yourself, "Great going. I can have different opinions and still be friends with people. This is a way that people can get new ideas also."

6. Picture yourself needing help or information concerning school work. You want to ask a classmate but you are afraid he or she will think you are dumb or that he or she will make fun of you.

   a. Picture yourself asking a classmate for help or information and feeling good about it.

   b. Picture saying to yourself, "I'm really developing a lot of courage. It doesn't matter if someone thinks I'm dumb just because I don't know something. Besides, I was able to allow the other person to share."

7. Picture yourself needing help or information concerning school work. You want to ask your teacher but you are afraid she will think you aren't very bright.

   a. Picture yourself calmly and confidently asking your teacher for help or information without being afraid or embarrassed.

   b. Picture saying to yourself, "Keep up the good work. The important thing is that I don't become discouraged to learn new things. Besides, I made it easier for the teacher to do her job."

8. Picture your teacher going too fast for you during class. You wish she would slow down enough for you to understand the lesson but you are afraid to say anything.

a. Picture yourself confidently raising your hand, telling your teacher that you are not understanding the lesson because she is going so fast, and asking her if she could slow down.

b. Picture saying to yourself, "That wasn't so tough after all. I'm really coming along. I was able to help the teacher and some of the students also."

9. Picture yourself reciting in front of the class. You feel nervous, your knees are shaking, and you are wondering what everyone is thinking about you.

a. Picture yourself reciting in front of the class. You are confident in what you are doing, and realize that you don't have to be perfect.

b. Picture saying to yourself, "That's quite an improvement. I can really control my own behavior, and give others courage who have also been nervous before the class."

10. Picture yourself being unfairly criticized by one of your classmates. You are afraid to stand up for yourself and you do nothing to defend yourself.

a. Picture yourself courageously standing up for yourself. You tell the other person what you think without putting him or her down or hurting him or her.

b. Picture saying to yourself, "That was really tough, but I did it. I can't control everything or everyone, but I can control myself. Besides, I helped the other person to respect me."

11. Picture yourself being unfairly criticized by your teacher or other adults. You are afraid to defend yourself and you do nothing.

a. Picture yourself standing up for yourself and telling the other person your side of the story without putting them down.

b. Picture saying to yourself, "Good thinking. I'm really doing much better. I can really handle my own problems and earn other people's respect."

12. Picture yourself getting into an argument with another person. You feel defeated and withdraw from the situation.

    a. Picture yourself confidently handling the situation. You work out the problem with the other person and the argument ends.

    b. Picture saying to yourself, "It took a lot of courage to do that, but I did it. I'm really coming along great. Just remember that people will always have conflicts as long as they have different interests, but the most important thing is how they work their conflicts out."

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