

THE EFFECTS OF COGNITIVE SELF-INSTRUCTIONAL  
STRATEGIES ON CHILDREN'S FEAR OF FIRE

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(ABSTRACT)

Childhood fears have been considered to be part of normal development. It is when these fears develop into severe fears or phobias that they become of concern to clinicians. Children's fears have varied over the years from school related fears, to political fears, to fears of danger and death in most recent years. Of the latter category, fear of fire-getting burned emerged as the second most commonly reported fear among children. The present study examines two cognitive self-instructional strategies to test their effectiveness in reducing children's fear of fire. Cognitive strategies were the ones of choice in that they remedied many of the problems found in some of the other behavioral techniques. Either of two self-instructional strategies including a fire safety training program using self-instructions and a self-instructional fear reduction strategy were taught to second and third grade children. A major hypothesis of the study was not confirmed which maintained that

children who learned self-instructional fear reduction exercises would show greater reductions in fear than children who did not learn the exercises. Although these results were not evident immediately following training, a trend toward this expectation did appear at follow-up. These findings implied that although the cognitive self-control strategy was not effective in reducing children's fear immediately, it did tend to provide for greater maintenance of behavior change over time. The present study has implications for continued investigation in the areas of childhood fear reduction and the maintenance of behavior over time.

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## INTRODUCTION

Children's fears have been viewed by many as part of normal development (Marks, 1969; Morris & Kratochwill, 1983). Such fears are mild and usually of no clinical concern. When these fears develop into more intense fears and phobias then they become of concern to mental health professionals and clinicians. Children possess varied numbers and types of fears throughout the course of their development. One that has recently come to the attention of researchers is children's fear of fire. This fear, however may be a logical one when taking into account the large amount of fires that take place which involves children (Burger King Fire Safety Program, 1979, c.f. Jones & Kazdin, 1980). Be this as it may, this fear may still have detrimental effects on children's functioning in general as well as their ability to function effectively in a fire situation. The rise in fear of fire among children and the frequency in which children are found in these situations are justification for seeking methods of prevention and intervention. The primary purpose of this study is to develop and implement intervention which will attempt to reduce children's fear of fire. The basis of the intervention is to train children how to function appropriately in a fire situation using behavioral escape skills and self-instructional fear reduction strategies.

### Definition and Description of Fear

Fear as defined by Ollendick (1979) is a normal reaction to a real or imagined threat. It has been described by Marks (1969) as involving three types of reactions: 1) motoric reactions wherein the individual avoids the feared stimulus, object or event; 2) cognitive reactions which involve the individual having unpleasant subjective feelings or cognitions about the feared situation, e.g. muscular tenseness, irritability, panic and loss of control; 3) physiological reactions which may be experienced by the individual in the form of increased heart rate, perspiration and sweat, pupillary dilation, rapid breathing and a desire to urinate.

He distinguishes a phobia from fear by defining it as a special form of fear which 1) is out of proportion to demands of the situation, 2) cannot be explained or reasoned away, 3) is beyond voluntary control, and 4) leads to avoidance of the feared situation. Miller, Barrett & Hampe (1974) add that a phobia persists over an extended period of time, is unadaptive and is not age or stage specific.

The Diagnostic and Statistical Manual-III (1980) characterizes and distinguishes between three different kinds of phobias. These are simple phobia, social phobia, and agoraphobia. A simple phobia is characterized as a persistent, irrational fear of, and compelling desire to

avoid, an object or a situation. A persistent, irrational fear of, and compelling desire to avoid, a situation in which the individual is exposed to possible scrutiny by others and fears that he or she may act in a way that will be humiliating or embarrassing is characteristic of a social phobia. In both of these phobias there is significant distress because of the disturbance and recognition by the individual that his or her fear is excessive or unreasonable. The last phobia is that of agoraphobia. The individual with this disorder has marked fear of and thus avoids being alone in public places from which escape might be difficult or help not available in case of sudden incapacitation. This condition leads to a constriction of normal activities until the fears or avoidance behavior dominate the individual's life. If individual's fears meet these criteria, they are considered to be of phobic magnitude thereby definitely warranting intervention.

#### Incidence and Classification

Childhood fears as stated earlier are a part of normal development. These fears in a mild form are thought to be expected as well as adaptive in some cases. It is when these fears endure over time and develop into more severe fears or phobias that researchers and clinicians alike express the most concern. However, sometimes it becomes difficult to distinguish between what

is normal, excessive or severe in regards to children's fears.

Several researchers have looked at the incidence and types and classification of children's fears in an attempt to establish normal trends for such fears. Hagman (1932) was one of the first investigators who looked at the rate of fears among children. He found that children, two to six years old, possess an average of 2.7 fears. Jersild and Holmes in 1935 found that children of the same age group possessed a mean of 4.6 fears. Lapouse and Monk (1959) found similar mean numbers of fears in older children age six to twelve. Pratt (1945) found that children of this same age group possessed slightly more fears, 7.5 fears per child. To further emphasize the point that mild fears in children are common, MacFarlane, Allen, and Honzik (1954) found that out of ten children nine reported having mild to moderate fears. Two other researchers looked at the prevalence of childhood fears making a distinction between fears and phobias. Agras, Sylvester, and Oliveau (1969) studied 325 children and their parents and found that while the rate of mild fears was high, that of severe fear was about 8% and that of phobias was 2.2%. Miller et al. (1974) found similar results in that out of 249 children aged seven to twelve the majority experienced mild fear while only 5% experienced severe fear.

In investigating the prevalence of children's fears several findings have resulted that tend to be consistent across studies. The fact that girls report a greater number of fears and with greater intensity than boys tends to be supported by several researchers (Jersild, Golman & Loftus, 1941; Pratt, 1945; Croake, 1969; Croake & Knox, 1973; Ollendick, 1983; Ollendick, Matson & Helsel, 1985). Another fairly consistent finding is that children frequently report school related fears. Other findings have not been so consistent. Of these are the findings of Croake (1969) and Croake and Knox (1973) that lower socio-economic children have more fears than upper socio-economic children. Angelino, Dollins and Mech (1956) did not find support for this; instead they found both groups to possess equal numbers of fears. Another conflicting finding is that Pratt (1945) found older children to be more fearful while Ollendick et al. (1985) found younger children to be more fearful.

Over the years several researchers have attempted to classify children's fears and determine the most prominent of them. Jersild et al. (1941) reported the most prominent children's fears were school related or discipline related. He reported the top four fears as being 1) Failing a test, 2) Being scolded by father or mother, 3) Having a poor report card, and 4) Being scolded by the teacher. Pratt (1945) looked at the prominence of

fears in rural children. He found that 75% of the fears listed by these children were of animals and that younger children listed more of these fears than older children. The three most common fears were bears, snakes and bulls. Of the nonanimal fears the most common was fear of fire.

Angelino et al. (1956) did a prevalence study with 1100 subjects ranging in age from 9 to 18, which resulted in a ten category classification of children's fears. These categories were 1)Safety, 2)School, 3)Natural Phenomena, 4)Animals, 5)Health, 6)Economic and Political, 7)Personal Appearance, 8)Social Relations, 9)Personal Conduct and 10)Supernatural. Several significant findings resulted from this study. These included the findings that children's fears of safety decreased with age, both groups reported school related fears, girls reported more fears than boys in social relations and natural phenomena and economic and political fears showed a marked increase with age.

In 1969, ten categories of fear evolved from Croake's study which were similar to those of Angelino et al. (1956). These categories consisted of 1)Animals, 2)Future, 3)Supernatural, 4)Natural Phenomena, 5)Personal Appearance, 6)Personal Relations, 7)School, 8)Home, 9)Safety and 10)Political. The most commonly cited fears here were political in nature. In a study done by Croake & Knox in 1973, again political fears were found to be

predominant and school related fears followed.

In revising the Fear Survey Schedule for Children (Scherer and Nakamura, 1968), Ollendick discovered several interesting findings regarding children's fears. Five fear factors emerged from this study, which include 1) Fear of Failure and Criticism, 2) Fear of the Unknown, 3) Fear of Injury and Small Animals, 4) Fear of Danger and Death, and 5) Medical fears. The ten most common fears that resulted for girls were 1) a burglar breaking into our house, 2) being sent to the principal 3) bombing attacks, 4) being hit by a car or truck, 5) falling from high places, 6) earthquakes, 7) not being able to breathe, 8) fire-getting burned, 9) getting lost in a strange place and 10) snakes. Seven of the ten most prominent fears for boys were the same as those for girls (the first seven). The remaining three were death or dead people, getting punished by my father and germs or getting a serious illness. Eight of the 10 most common fears for girls and boys was in the fear of danger and death category.

Ollendick and colleagues continued to investigate the nature and classification of children's fears over the next few years. Ollendick et al. (1985) looked at the most common fears in children from ages seven to eighteen. The ten most common fears (in order) that emerged was as follows:

- 1) getting hit by a car or truck (endorsed by 42%

of the subjects)

- 2) fire-getting burned (38%)
- 3) not being able to breathe (38%)
- 4) death or dead people (36%)
- 5) bombing attacks-being invaded (34%)
- 6) getting poor grades (34%)
- 7) a burglar breaking into our house (33%)
- 8) having my parents argue (33%)
- 9) looking foolish (31%)
- 10) falling from high places (30%)
- 11) being sent to the principal (30%)

Thirty percent or more of the subjects indicated that they worry or are afraid "a lot" of these stimuli. Eight of the ten most common fears were the same for girls and boys for all ages except the youngest age group. They shared four of these eight which included a burglar breaking into my house, fire-getting burned, not being able to breathe and death or dead people. The other four fears held by this group were more idiosyncratic. Eight of the ten most common fears were from the fear of danger and death category.

To summarize, overall children's fears based on the common categories or factors have tended to remain stable over the past thirty years. However, specific stimuli in which children report being most afraid (one which they give rank number one) has tended to shift over the years.

In 1941 (Jersild, Goldman and Loftus) children were most afraid of school related events and punishment and in the late 50's through 60's political and economic fears dominated (Angelino et al. 1956; Croake, 1969; Croake & Knox, 1973). In recent studies fears have centered around danger and death with fear of getting hit by a car or truck and fear of fire-getting burned being the top two fears (Ollendick et al. 1985; Ollendick, 1983).

### Overview of Fear Conceptualizations

Over the years researchers utilized several different conceptualizations of fear. Prior to the 1960's the psychoanalytic theory was the most prevalent one engaged to explain the acquisition and maintenance of fear (Ollendick, 1979). This theory states that the basis for phobic disturbances is the Oedipus complex. The child wishes to possess the mother sexually and is jealous and hostile towards the father. The child fears his father because of these wishes. These fears are then projected onto some external stimulus object (Rachman & Castello, 1961). Freud's theory is best exemplified in the well known case of Little Hans. This five year old boy's fear of being bitten by a horse was interpreted as symbolic repression of a hostile impulse against his father (Bamber, 1979).

Today the psychoanalytic theory is emphasized less. The more preferred explanations come from a learning

theory. Within learning theory are three sub theories, those based in respondent conditioning, operant conditioning and the two factor theory. Early learning theory was based on the experimental work of Watson and Raynor (1920). These experiments demonstrated that fear could be conditioned by way of a Pavlovian classical conditioning paradigm. These authors paired a neutral object (white rat) with a loud noise and conditioned an 11-month old boy, Albert, to be afraid of the object. The child associated the fearful noise with the white object thereby soon becoming afraid of all white furry objects. Based on these demonstrations, a social learning theory evolved to explain the development and maintenance of fear which Rachman (1968) summarized in 10 statements. These are as follows:

- 1) Phobias are learned responses.
- 2) Phobic stimuli, simple or complex, develop when they are associated temporally and spatially with a fear producing state of affairs.
- 3) Neutral stimuli which are of relevance in the fear producing situation and/or make an impact on the person in the situation, are more likely to develop phobic qualities than weak or irrelevant stimuli.
- 4) Repetition of the association between the fear situation and the new phobic stimuli will

strengthen the phobia.

- 5) Associations between high intensity fear situations and neutral stimuli are more likely to produce phobic reactions.
- 6) Generalizations from the original phobic stimulus to stimuli of a similar nature will occur.
- 7) Noxious experiences which occur under conditions of excessive confinement are more likely to produce phobic reactions.
- 8) Neutral stimuli which are associated with a noxious experience may develop (secondary) motivating properties. This acquired drive is termed the fear drive.
- 9) Responses (such as avoidance) which reduce the fear drive are reinforced.
- 10) Phobic reactions can be acquired vicariously.

Rachman (1968) basically focused on the respondent conditioning involved in the learning of fear. He assumed that anxiety is the basic component of phobic behavior and that any stimulus present during the fear reaction will evoke that fear reaction on subsequent occasions. If this conditioning happens continuously and is of high intensity, fear will occur and maintain whether or not it is reinforced.

Miller et al. (1974) illustrated the importance of

the operant conditioning aspects of the theory. This part of the theory based on the instrumental conditioning paradigm of Skinner (1938, 1953) postulates that behavior that is rewarded will tend to reoccur while behavior that is not rewarded will extinguish. It assumes that the avoidance behaviors observed in phobics are positively reinforced. These authors suggest that parents, teachers and the like teach children to be afraid by attending to and rewarding fearful behavior. Fear and avoidance rather than coping responses then are rewarded and the child fails to learn adaptive responses to these feared stimuli. These fears are maintained as well by these reinforcements.

Mowrer (1956) sought to combine the two conditioning models to develop what is known as the two-factor theory. His view is that phobias are developed according to respondent conditioning but are maintained by way of the operant paradigm. He posits that the reduction of these fears and anxieties are done by way of the operant paradigm as well. Avoidance of the feared stimuli which leads to anxiety reduction becomes reinforcing.

Another conditioning model which explains the development of fear is that of vicarious conditioning or modeling. Bandura (1969) puts forth the notion that fears can be acquired by observing another individual exhibit a fearful response to a stimulus. In viewing this external

agent an emotional response is elicited in the observer which becomes associated with the stimulus object. This theory has its bases in several laboratory and correlational studies.

In summary, fears in children may develop through any one of these conditioning models. Likewise they may be maintained through either of the models individually or through a combination of the models.

#### Fear\_Reduction\_Methods

Children's fears, as compared to adult fears and phobias, have been researched far less. Few controlled studies exist which investigate the nature and reduction of children's fears. However, several case studies have been reported which focus on the reduction of various fears in children of all ages. In the majority of these studies the reduction method of choice is the one that is also most commonly used with adults, systematic desensitization. This procedure has been shown to be highly effective in reducing adults fears and phobias (Bellack & Hersen, 1977), but due to the lack of controlled research in the area of children's fears, it is difficult to say whether it is the most effective technique for children.

Several case studies will be presented here which illustrate the effectiveness of systematic desensitization in the treatment of children's fears.

Tasto (1969) showed that systematic desensitization was effective in reducing a four year old boy's fear of loud noises. The treatment strategy used was based on the Wolpe and Lazarus technique (1966) which employed muscle relaxation and imagery of the feared stimuli on a hierarchy. The boy learned to relax himself fairly easy but failed to imagine fear provoking stimuli. The therapist then resorted to in-vivo desensitization in the sessions when feasible. Also parents assisted in the treatment by gradually exposing the subjects to items on the hierarchy. This treatment was successful in eliminating this boy's fear after six sessions. The study showed that systematic desensitization, utilizing in-vivo conditioning, was effective in reducing fears in young children.

Miller (1972) continued along this same line of research whereby he treated a multi-phobic 10 year old boy with in-vivo and imaginal systematic desensitization. This boy had school phobia (to the extent that he no longer attended school), fear of being separated from his mother, and inability to sleep due to fear of dying. Miller treated these fears separately using Wolpe and Lazarus' (1966) technique. Separation anxiety was dealt with first after training the child in deep muscle relaxation, followed by fear of dying and school related fear. The subject used imagery in the separation and

school related fears, however, with the fear of dying, imagery was inappropriate. In the latter fear the therapist conducted relaxation over the phone at bed time. All fears were eliminated in five to nine weeks. This study illustrated the effectiveness of muscle relaxation and visual imagery in reducing children's fears.

Another case study which showed the effectiveness of imagery and relaxation is one done by Weinstein (1976) which used these procedures with a 10 year old burn patient. This patient developed a fear of water after having become severely burned on 70% of his body. Weinstein conducted two sessions with him wherein he trained the client in relaxation procedures and instructed him to use imagery to visualize positively valenced events. Following these sessions, two in-vivo desensitization sessions occurred which resulted in a decrease in fear, evidenced by an extinction of screaming and hitting.

Freeman, Roy and Hemmick (1976) investigated the use of systematic desensitization with mentally retarded children. Because of these children's limited cognitive abilities, these researcher saw great difficulty in teaching them imagery and relaxation techniques. Instead they used in-vivo desensitization and a social relationship in their desensitization package. They

successfully treated a 7 year old boy to overcome his fear of examinations. They devised a hierarchy which involved gradual steps in the examination procedure. As a counterconditioning agent, a nurse with whom the boy was totally comfortable was used. The nurse initially carried out all of the steps of the examination. A fading process was then instituted whereby the doctor began performing some of the steps with the nurse present until the client would allow the doctor to perform all the steps in the nurse's absence. After 11 weeks the boy showed no fear when examined by the doctor. The fear reduction generalized to other doctors and examinations. This study indicates that systematic desensitization can be used effectively with retarded individuals if modified.

These studies illustrate that systematic desensitization can be used effectively in reducing a variety of fears in children. They also suggest that the standard systematic desensitization procedures may not be appropriate for young or mentally retarded children due to their limited cognitive abilities. When modified, these procedures may prove to be effective with the groups in question.

Even though effective outcomes have been shown in many case studies using systematic desensitization, one can not conclude that these positives outcomes were due solely to the treatment procedures. Without controls or

an appropriate experimental design, the positive results may be attributable to other impinging variables.

Ollendick (1979) employed a single subject design to investigate more experimentally the efficacy of systematic desensitization in the treatment of fear. He also programmed in a maintenance strategy that would serve to retain outcome once acquired.

The subject was a 16 year old male with anorexia nervosa. The client's anorexia nervosa had a phobic component in that he feared becoming overweight. Six months prior to treatment the client had been overweight which led to ridicule and degradation by his peers. Immediately before onset of treatment the client had lost 39% of his previous body weight which was a danger to his health.

The client was successfully treated with a package consisting of systematic desensitization, informational feedback and cognitive restructuring. Systematic desensitization and informational feedback regarding the subject's weight was given in 24 sessions over an eight month period wherein the subject's weight increased to a safe level of 160 pounds. During the next four months systematic desensitization was withdrawn and only feedback was given on a monthly basis. Over these four months the subject's weight decreased to his pretreatment unsafe level of 125 pounds. Following this period,

systematic desensitization and feedback were reinstated and his weight increased again to 161 pounds. Again systematic desensitization was removed and his weight dropped to 128 pounds. Upon completion of this phase the maintenance component (cognitive restructuring and feedback) of the treatment package was implemented. In these sessions, the subject was taught how to use cognitive strategies and subsequently dealt with restructuring inappropriate thoughts. During this phase the subjects's weight again increased to 167 pounds. Lastly, cognitive restructuring was discontinued and only feedback was given for the next four months. The subject's weight maintained during this phase at 166 pounds. He also reported less anxiety and a greater desire for food. Upon a two year follow up the subject's weight had decreased some (146 lbs.), but increased to the desired level following refresher maintenance sessions.

This study shows that the fear of eating and becoming overweight by anorexic patients can be reduced as a function of systematic desensitization. Feedback alone failed to result in an increase, but rather resulted in a decrease of previously gained weight. The study further suggests that cognitive procedures are effective in producing maintenance of acquired behavior.

Aside from clinical case studies, several analog studies have been reported which focus on the reduction of

children's fears with systematic desensitization. These studies were classified as such because although they were experimentally controlled, they focused on treating fears that were only mild to moderate in degree and for a short period of time. Several of these studies will be reviewed here.

Kondas (1967) illustrated the efficacy of systematic desensitization over relaxation or autogenic training alone in test anxious and stage frightful children. He divided 23 children into groups of four, namely a systematic desensitization group, an autogenic training group, a hierarchy without relaxation group and a control group. Results showed as indicated by the Fear Survey Schedule and interview data that subjects in the systematic desensitization groups after treatment had less anxiety and fear than either of the other groups. This study supports the notion that systematic desensitization is effective in reducing children's fears.

Barabasz (1973) like Kondas (1967) was interested in reducing children's test anxiety by means of systematic desensitization. He was particularly interested in the efficacy of these procedures in group settings namely the classroom. He compared a systematic desensitization group (Wolpe, 1966) of high and low test anxious children to a control group of high and low test anxious children. Subjects were determined to have high or low anxiety based

on galvanic skin resistance scores. The subjects were also given prior to treatment the Lorge-Thorndike Intelligence Test to measure baseline intellectual abilities. The author found that high test anxious subjects having undergone systematic desensitization had significantly lower GSR scores and showed greater improvement on an alternate form of the Lorge-Thorndike Intelligence test than did high test anxious controls. Low test anxious individuals were unaffected by the treatment.

In summary, systematic desensitization has been shown to be effective in many case studies and analog studies. However, few experimentally controlled studies exist which examine the efficacy of the technique in the treatment of children's fears. Since this is the case, it is difficult to say whether this is the most effective technique for reducing children's fears although it is the most commonly used. Two main problems arise when using this technique with children. These include 1) some children are unable to engage in imagery and 2) some cannot effectively learn muscle relaxation. These processes make up essential components of the systematic desensitization technique. Because of these problems and limitations other methods of reduction have been sought.

Another method that has been used to reduce children's fears is that of positive reinforcement or

contingency management. This procedure has been used either alone or in combination with other behavior therapies. Graziano, Mooney, Huber and Ignasiak (1979) and Graziano and Mooney (1980) used contingency management in combination with self-control strategies to reduce children's fear of the dark. In a study done by Williamson, Jewell, Sanders, Haney and White (1977) two young children who avoided speaking to anyone outside of the home were treated with the use of positive reinforcement. The children only spoke to members of their family. A token reinforcement system was used with both children. One child received tokens dependent upon his verbalizations to his peers at recess. The child could exchange the tokens for various reinforcements such as a class party, being first in the lunch line, etc. The second child's tokens depended on his speaking with his brother or a stranger either spontaneously or after having been prompted. The results showed that each child's speech increased and was maintained at a two-month follow up for one child and at a one-year follow up for the other child. Due to a lack of control subjects, it can not be concluded unequivocally that the changes were due directly to positive reinforcement.

A third fear reduction method that has been used is modeling. This treatment is based upon Bandura's (1969) premise that fear can be learn through observation. If

this is the case, fear can also be unlearned through the same principles.

Ritter (1968) did an early study which tested this claim. He compared participant modeling, live modeling and a control condition to determine the efficacy of each in reducing children's fearful behavior of snakes.

Forty-four children age five to eleven years old participated in the study. Children in the live modeling group observed their peers interact with the snakes in a fearless manner. These models became progressively more intimate with the feared object. The children in the participant modeling (or contact desensitization group) observed the model, as well as had contact with the model and the snakes. Children in the control group were only seen for pretest and post test. The results indicated that both experimental groups had greater decrements of avoidant behavior than did the control group and that the participant modeling group showed greater decreases than the live modeling group. It was found that 53% of the children in the live modeling group successfully completed the terminal item on the Behavior Avoidance Test, while 80% of the participant modeling group completed the terminal item. Zero percent of the control subjects completed the item. These results lend support to the effectiveness of modeling as a technique for reducing fears. However, since there were no follow up or

generalization data reported this conclusion can not be drawn without some doubt.

Since then few researchers (Matson, 1981, Ross, Ross & Evans, 1971) have investigated the role of live modeling in reducing children's fears. The studies that have been done have focused on reducing specific fears such as animal fears, test anxiety and dental phobias. Morris and Kratochwill (1983) stated that this procedure is speculative with phobias in general and should be used with caution due to the specific and limited stimuli on which it has been tested.

A second form of modeling has also been used which is called symbolic modeling. There has been more controlled research done with this type of modeling than has been done with live modeling. Bandura and Menlove (1968) studied the effects of filmed modeling on childrens' avoidant behavior towards dogs. The children ranged in age from three to five years old. One group of subjects observed a film of a five year old boy becoming progressively more intimate with a dog. At the beginning of the film the model was shown looking at the dog housed in a playpen, followed by occasionally petting it. These scenes were later succeeded by ones showing the model inside the playpen with the dog, feeding and petting it.

The second group observed a film which showed several models interacting with many dogs of different sizes. The

third group, the control group, was shown a Disneyland film. All children viewed eight different movies for four consecutive days. The results illustrate that children in both modeling conditions had significantly greater scores than the control children on the Behavior Avoidance Test. These differences were maintained at follow up. No significant differences were found in scores between the two modeling groups. Slight differences however, were found in reference to terminal approach performances with the multiple model group performing slightly better than the single model group. These results exemplify the efficacy of modeling in the treatment of fearful and avoidant behavior.

Morris and Kratochwill (1983) made the same point about symbolic modeling as they did with live modeling in that it should be used cautiously when treating fears other than the specific ones in which it has been tested.

To summarize, several different fear reduction techniques have been used to treat children's fears and phobias. The research available that looks at the efficacy of these techniques consists largely of case work and uncontrolled studies thereby making it difficult to draw conclusions about the appropriateness and effectiveness of these techniques with children. Systematic desensitization, the most commonly used of the techniques has been wrought with some major problems which

has led to the technique being ineffective with certain child populations. Other techniques have been faulted for being too limited and specific, only being effective when combined with other procedures and not providing for maintenance over time.

Still other fear reduction strategies have been used to treat children's fears. These include cognitive self-control strategies which have served to remedy some of the problems inherent in the previously discussed procedures. These procedures also have been found to result in greater maintenance and generalization than many of the behavioral techniques (Ollendick, 1985; Kazdin, 1980). Before reviewing studies which have illustrated the effectiveness of cognitive strategies, the self-control theory on which many of the techniques were based will be discussed. The discussion will then be followed by a description of a specific cognitive self-control procedure that is commonly used.

Meichenbaum's (1976) cognitive theory of self control consists of three stages which accounts for behavior change. The first step of the process involves the client's becoming an observer of his own behavior, followed by a stage of incompatible thoughts and behaviors and lastly the third stage involves the client's cognitions concerning the behavior change.

In the first stage the client becomes aware of his

thoughts, feelings and behaviors. He focuses his attention on and monitors his feelings and behaviors during this stage as well. The client comes to view his behavior from a different perspective than the one originally used. The way or manner in which he views these behaviors and thoughts depends largely on the therapist's orientation. In other words, a client having reached the self observation stage may now view his debilitating thoughts or behaviors from either a social learning, psychoanalytic or a semantic perspective depending on the direction in which guided by the therapist. In any event the client comes to view his behaviors, feelings and thoughts in a new light. As a result of this new awareness or insight the client gains a sense of control. He now feels that he is an active participant, contributing to his experiences and conditions rather than a passive victim who lacks control of his life situations.

The next stage is that of incompatible thoughts and behaviors. Self-observation and realization of self-control initiates a new set of behaviors and cognitions by the client that are contrary to the previously held maladaptive thoughts and behaviors. The client recognizes the incompatibility between the old and new way of thinking and behaving. This recognition in turn leads to the client exhibiting a new behavioral

chain, one that is consistent with the trained, adaptive thoughts and feelings.

The third stage has to do with the client's cognitions about his new behavioral change. What the client says or thinks to himself regarding the newly acquired behavioral chain will determine whether the behavior will maintain and generalize. For example if a client perceives or imagines the change to be negative as a result of negative reactions from others then it is likely that change will neither maintain nor generalize. In essence a client's cognitions and self verbalizations are important (for maintenance and generalization) even after the behavior change has occurred.

Meichenbaum summarizes his cognitive theory of self-control by stating that one can treat a client's verbal responses that occur between the thought and the act and by doing so reach backward to change the thoughts and reach forward to modify the behavior. Through monitoring and modifying his thinking, self-statements and images, a client can effectively change his behavior and thus gain self-control.

A cognitive self-control technique that has gained much attention in recent years and has been used quite frequently with child populations is that of cognitive self-instructions. Self-instructional training as defined by Meichenbaum (1977) is a multi-faceted intervention by

which people learn to control their behavior via instructions and verbalizations. Individuals use task relevant statements, overt or covert, to change, direct and control their own behavior thereby inducing greater self-control.

The self-instructional procedures that will be used in the present study will be adopted from the procedure used by Meichenbaum (1971). This procedure was based on Luria's (1961) three stage theory of development. Luria put forth a theory which emphasizes the developmental progression of an individual's behavior from being under external control to internal control. He posits that a child under two years of age is unable to use speech to direct his own behavior. The speech of others (an adult, usually a parent) initiates, directs and controls the child's behavior. During the second stage, the child can use his own speech to some extent. The child's speech here has a motor component that helps initiates behavior but does not inhibit it. In the third stage, the semantic content of the child's speech for himself becomes dominant, directive and internalized. The child regulates and controls his own behavior through covert speech.

The self-instructional procedure devised by Meichenbaum (1971) followed a similar progression. The child performs initially according to an adult's instructions, followed by his own overt instructions and

finally by his own covert instructions. The first phase of the training whereby an adult model performs a task while talking aloud to himself is called cognitive modeling. The second phase, overt external guidance, is when the child performs the same task under the direction of the model's instructions. Overt self-guidance is the third phase wherein the child performs the task while instructing himself aloud. During faded self-guidance, the child whispers the instructions to himself as he goes through the task. Lastly, in covert self-instructions the child performs the task while guiding his performance by way of private speech.

The verbalizations or instructions used by the adult and later by the child included: 1) questions about the nature and demands of the task so as to compensate for a possible comprehension deficiency; 2) answers to these questions in the form of cognitive rehearsal and planning in order to overcome any possible production deficiency; 3) self-instructions in the form of self-guidance while performing the task in order to overcome any possible mediation deficiency; and 4) self-reinforcement (Meichenbaum & Goodman, 1971).

Self-instructions have been used successfully for the treatment of many problems in wide and varied populations (Bem, 1967; O'Leary, 1968; Meichenbaum, 1969; Monahan & O'Leary, 1971; Navaco, 1976; Whitman & Johnston, 1983;

Jones & Haney, 1984). However, few studies exist which apply self-instructional strategies to impulsive type behaviors and even less which applies the strategies to reducing fearful behaviors and cognitions. Meichenbaum and Goodman (1971) attempted the first of such studies which looked at the efficacy of a cognitive self-instructional procedure in modifying the behavior of impulsive children. Their goals were to train impulsive subjects to provide themselves with internally originated verbal commands or self-instructions and to respond to them appropriately. They also wished to strengthen the mediational properties of the children's inner speech and to bring their behavior under their own verbal control. Lastly they wanted the children to overcome any comprehension, mediational or production deficiencies and also to learn to appropriately self-reinforce their behavior. This investigation consisted of two studies wherein the first one evaluated the efficacy of the cognitive self-instructional procedures in reducing children's impulsive behaviors while the second study looked at the various components of the treatment package.

In study I fifteen impulsive second grade students were used. They were placed in either a cognitive self-guidance treatment group, an attentional control or an assessment control group. The subjects in the cognitive self-guidance group received four treatment

sessions where the subjects were trained to self-instruct as described earlier using a variety of tasks. The pretest and outcome measures used were psychometric instruments and classroom behavior.

The results showed that subjects in the cognitively trained group took significantly longer to respond, indicating a reflection of thought, and made fewer errors on all of the dependent measures. These results suggest that a cognitive self-guidance training program can significantly alter the behavior of impulsive children. From this study it was difficult however, to determine which of the component parts of the treatment package was responsible for altering the attentional strategy of the impulsive children.

Study II was designed to answer this question by comparing separate components of the treatment strategy, those being modeling alone versus modeling plus self-instructions. Fifteen impulsive kindergarten and first grade students were used and placed in either of the two groups.

Subjects in the cognitive modeling group observed the experimenter model appropriate verbalizations and behaviors for the Matching Familiar Figures (MFF) task. They were encouraged to and reinforced for using the strategy modeled but were not trained to do so. Conversely, subjects in the cognitive modeling plus

self-instructions group were trained to self-instruct as in the previous study.

Results of this study indicate that the cognitive modeling plus self-instructional group responded slower and with fewer errors. These results exemplify the efficacy of the self-instructional component. This component is necessary for maximal effectiveness of a cognitive self-guidance treatment. The results of these studies in combination support the notion that impulsive children can be taught to use their private speech to orient, organize, regulate, reflect and self-reward functions which result in greater self-control of their behavior.

Meichenbaum (1971) after completing his impressive work on the use and effectiveness of cognitive self-instructions with impulsive children became interested in applying these procedures to other populations. His 1972 study was a pioneer effort to investigate the efficacy of cognitive self-instructional procedures in reducing anxiety. He aimed to modify the worry component of test anxiety which is said to emphasize an attentional debilitation. The individual's attention is divided between himself and the task (Wine, 1971 c.f. Meichenbaum, 1972). He further states that the test anxious subject's performance can be improved by directing his attention to task relevant variables and

away from self-evaluative ruminations. Therefore Meichenbaum focused his treatment on the worry component and the attentional style of the individual.

The cognitive modification treatment strategy used consisted of two components. The first component attempted to make the test anxious subjects aware of the thoughts, self-verbalizations, and self-instructions emitted prior to and during test situations which contributed to poor performance. The second component of the procedure was a modification of systematic desensitization. This component consisted of a coping imagery procedure which required the subjects to imagine himself in tense and anxious situations. He then was to visualize himself handling and coping with the anxiety by means of deep breathing and self-instructing himself to attend to the task.

Twenty one subjects were used in the study. These subjects were placed in three groups, a cognitive modification group, a standard systematic desensitization group and a waiting list control group. Subjects were given a pretest, eight sessions of treatment, a post test and a one month follow up assessment. Several self-report measures, grade point averages and behavioral assessment in a laboratory test-taking situation were used to determine change in test anxiety.

The results show that the cognitive modification

group produced the most marked improvement. Subjects in the cognitive modification group reported that the anxiety that they did experience following treatment was facilitative rather than debilitating. These subjects also reported levels of anxiety after treatment that were similar to those of low test anxious individuals.

These results indicate that a cognitive modification treatment procedure which makes test anxious subjects aware of their anxiety producing self statements and provides them with incompatible self-instructions and behaviors is an effective method of reducing test anxiety.

In reviewing the literature only four studies were found that utilized cognitive procedures in reducing fears in children. Of these four studies three used a controlled experimental design. Of the three controlled studies two illustrated the effectiveness of cognitive instructional procedures in reducing children's fears.

Kanfer, Karoly and Newman (1975) tested the differential effects of responses, focusing on an individual's competence and self-control versus verbal responses that serve to diminish the aversive nature of the feared situation. They investigated the effects of these two types of verbal responding in the reduction of children's fear of the dark.

The subjects involved in the study were 45 kindergarten children. These children were placed in one

of three experimental groups, the competence group, the stimulus group or the control group.

At pretest, subjects were placed in a dark room with an adjustable light dial which they were free to operate. The dial could vary the room's illumination from total darkness to full illumination. Subjects were told to try and remain in the dark as long as possible without increasing the light.

During training sessions, the subjects were instructed to repeat certain sentences depending on the experimental group. The competence group was trained to say "I am a brave boy (girl). I can take care of myself in the dark". The stimulus group was instructed to say "The dark is a fun place to be. There are many good things in the dark". Subjects in the neutral group were told to say "Mary had a little lamb. Its fleece was white as snow".

The authors found that both experimental groups showed significantly greater tolerance levels or duration of the feared stimuli than did the neutral group. Those subjects who learned self-control statements (competent group) displayed greater tolerance levels than those in either of the other groups.

These findings suggests that positive self-descriptions involving active coping with a stressful situation are more effective in producing tolerance to the

situation than the rehearsal of statements which focus on the positive rather than aversive aspects of the feared situation. This study illustrates that self-instructions are indeed effective in enhancing children's tolerance to the dark thereby reducing their fear of it.

A second study which utilized a cognitive fear reduction strategy was a multiple case study done by Graziano, Mooney, Huber and Ignasiak (1979). They aimed to reduce clinically severe fears of children with a cognitive change strategy. The fear reduction strategy consisted of self-instructions, imagery, relaxation and token reinforcement.

Seven children, ages 3 to 6 years old with a fear of the dark participated in the study. The children and their parents were seen for five weeks, three of which was actual treatment. In training sessions the subjects were told that they would be taught how not to be afraid anymore. They were instructed to lie down and relax their muscles, think about a pleasant scene and say the following sentences, "I am brave boy. I can take care of myself in the dark". The children were told to practice these exercises every night and also when they became afraid. They received tokens for correctly practicing their exercises and going to bed quietly. The tokens were later cashed in for a McDonald's party.

The subject's fear levels were assessed at pre and

post test using a 120 item fear survey and a fear strength questionnaire. Parents also described their child's fear behavior. A criterion of ten consecutive nights of fearless behavior was set to determine successful completion of the program.

The results show that all subjects reached criterion responding, with six of the seven subjects reaching it within a 10 week period. Children's fear levels decreased steadily from pretest through the one year follow up. Total fears reported by the subjects also decreased following training.

These results suggest that self control training and home practice is effective in decreasing children's night time fears and that these decrements maintain over time. The authors suggest that token rewards and back up reinforcers serve as powerful incentives initially to start and maintain the child's efforts to practice the self control exercises. However, once the child practices and sees the effects of the self control skills these skills begin to take on reinforcing value in and of themselves. It is these skills that are thought to account for significant behavioral change and maintenance.

Graziano and Mooney (1980) tested the fear reduction procedures used in the previous study (Graziano et al., 1979) in an experimentally controlled design. They again focused on the reduction of severe night time fears using

verbal mediation and home practiced self control procedures. The major goal was to test systematically whether simple instructions to children and parents on appropriate ways to use and practice cognitive and behavioral self control skills are effective in reducing fear of the dark and problematic night time behavior.

Thirty three children with clinically severe fear of the dark participated in the study. Children were placed either in an experimental or control group. The experimental group subjects underwent the same training as described in the previous study. The same assessment measures and success criteria were used.

The results indicate that subjects who received training displayed less fear than those who did not receive training. They scored less on all measures than did control subjects and had significantly greater ratings of improvement. By the two month follow up, 14 of the 17 children which were treated had met the ten night criterion.

These findings like those of the previous study support the effectiveness of a verbal mediation self control procedure in reducing children's clinically severe fear of the dark. This study along with Graziano et al. (1979) and Kanfer et al. (1975) illustrates the effectiveness of cognitive self control procedures in reducing children's fears.

Sheslow, Bondy and Nelson (1982) also did a study utilizing cognitive procedures to reduce children's fear of the dark. They compared graduated exposure, verbal coping skills and a combination of the two in order to determine their effectiveness in treating non-clinical fear of the dark. The verbal coping procedure was based on that used by Kanfer et al. (1975). There were four groups consisting of 32 four to five year old subjects; a graduated exposure group, a verbal coping skills group, a coping skills/graduated exposure combination group, and a contact control group.

Subjects in the graduated exposure group were gradually exposed to nine different levels of decreasing illumination. When the child became fearful he was to indicate it verbally or by beeping a horn that was provided. At the sound of a fear signal the room was immediately returned to full illumination. This process was continued until the child could successfully withstand all nine levels of illumination without making a fear response.

In the verbal coping skills group subjects and trainers discussed three potential sources of fear of the dark: hearing, seeing and imagining things in the dark. They were then taught a coping phrase for each of the aforementioned sources of fear (e.g. "If I hear things in the dark, I know its just the TV. I don't have to be

afraid because its just people talking"). These phrases were practiced in pretend situations during the final phase of training.

Children in the combination group of coping skills plus graduated exposure underwent the same treatment procedure as the subjects in the verbal coping group except for the last phase of training. During this final phase children practiced their coping phrases at each of the nine levels of illumination.

The contact control group subjects received no treatment and were only taught to recite nursery rhymes.

The results of the study showed that only those groups using in vivo exposure to the feared stimulus showed significant increase in dark tolerance. Subjects in the verbal coping group or verbal coping plus exposure group showed no significant increases. This is in contrast to the Kanfer et. al (1975) study. The authors of this study explain this discrepancy in light of their sample's age range. They suggest that their sample of four to five year olds may not have reached the stage of development whereby one's speech becomes self-regulatory and directive of his motor behavior (Luria, 1961).

The present study looked at a specific fear and attempted to decrease it using a cognitive self-control strategy. The self-control strategy that was used was that of cognitive self-instructions since there is some

support for the notion that this technique is effective in the acquisition, maintenance and generalization of behavior change.

The fear that was viewed in this study is children's fear of fire. This fear was deemed appropriate in that according to Ollendick (1985) it is the second highest fear that is reported by children. Jones, Ollendick, McLaughlin & Williams (unpublished manuscript) found similar results in their study. The high prevalence of this fear may be understandable in view of the fact that many fires occur each day wherein children are directly involved. It has been estimated that 12,000 people die and 300,000 are injured in fires each year (National Fire Protection Association, 1975; c.f. Jones & Haney, 1984). Many of the fires that are started in the home are done so by children, in fact between 1970 and 1974, 66,760 fires were caused by children. Further, fires have been found to be the leading source of child fatalities in the home (Burger King fire safety program, 1979; c.f. Jones & Kazdin, 1980). With this in mind, it is little wonder that those children having experienced such a traumatic event of having their houses burn down and losing loved ones would develop such a fear. And those children who have not been directly exposed to a fire situation are constantly influenced by television and the media which highlight the traumatic effects. Given these facts that

children are an at risk population for fire and that they exhibit high degrees of fire fear, appropriate intervention on both of these counts are warranted.

#### Fire Safety Literature

A series of intervention studies have been carried out which focus on the first area of concern, namely, fire safety. Jones and Kazdin (1980) initiated these studies which were designed to teach children fire safety and emergency responding. In the first of such studies children were taught how and when to make emergency phone calls. Sixty-five pre-school children were placed in either behavioral training, a teacher devised training or a no treatment control group. The authors found that a behavioral training procedure consisting of modeling, prompting, feedback, review and reinforcement was effective in teaching children to make emergency phone calls. Also in this study they trained children to effectively discriminate between situations that required emergency dialing. Thirty pictures were used wherein 10 were of fire scenes, 10 of accident related injuries and 10 of neutral situations. Using a modeling and feedback training program subjects were taught when as well as how to respond to emergency situations.

Jones, Kazdin and Haney, 1981 took the investigations involving emergency responding a step further. Instead of just training individuals the appropriate ways of

reporting fire emergencies, they felt a need to teach individuals safe behaviors to engage in if faced with these situations. They trained five third grade children safe fire escape responses (i.e. to roll out of bed, crawl to the bedroom door etc.) to four different fire emergency situations. Subjects were taught the safe exiting skills in a simulated bedroom via instructions, shaping, modeling, feedback and external and self-reinforcement. The results of the study indicated that children can be effectively taught fire safety skills using a behavioral training approach. The efficacy of this procedure is indicated by increased performance of safe behavioral responding as well as increased scores on a fire safety knowledge self-report questionnaire. Subjects were given a 2 week post check and it was found that performance on both measures had dropped slightly since the first post check.

Jones et al. (1981) conducted follow-ups to the previous study to further investigate the maintenance of the acquired behavioral skills. In these follow-ups they found that the acquired behaviors had failed to maintain. Subjects performed on the average near perfectly (92.3%) after training, perfectly (100%) upon 2-week post check and poorly at 5 month (45.8%) and 9 month (52.9%) follow-ups. Self report data was consistent with the behavioral data in that at follow-up 1 subjects obtained

84.8% of the correct answers, 95% immediately following a brief retraining and 76% at follow-up 2.

These data led Jones and colleagues to become interested in a somewhat more important research question of how you can get behavior to maintain once it is acquired. This question became a main focus of the next few studies in the fire safety series. These researchers continued to investigate different methods that would lead to the acquisition of fire safety skills but also implemented methods that would lead to greater maintenance and generalization of the skills.

Jones, Van Hasselt and Sisson (1984) conducted a study to examine the effectiveness of a cognitive-behavioral strategy in training blind adolescents fire safety skills. A second goal of the study was to effectively program into the intervention strategies for maintenance of the learned skills.

Four blind adolescents were trained to respond safely to four emergency fire situations. Training occurred in three stages - 1) Acquisition training, which consisted of instructions, behavior rehearsal, explicit corrective feedback, social and external reinforcement and verbal and behavioral reviews - 2) Maintenance programming, which consisted of a specific mode of stimulus presentation (in an isolated followed by simultaneous fashion), self-evaluation, self-reinforcement and - 3) Overlearning

consisting of a series of review sessions to also enhance maintenance.

These researchers found that a cognitive-behavioral intervention was effective in teaching fire-safety skills to blind adolescents. They further found that high levels of maintenance were found at follow-up. Based on these data Jones et. al (1984) suggested that the self-regulatory tasks employed in the study accounted for maintenance of behavior in that they allowed subjects to play an active role in changing their own behavior. The tasks of self-evaluating and self-reinforcing one's own behavior is thought to have focused or directed subjects' attention to task relevant variables.

Jones and Haney (1984) tested the speculations from the previous study and other researchers (Kazdin, 1980; Ollendick, 1979) of the active involvement of cognitive procedures leading to greater maintenance of responding. They investigated the role of two types of instructional procedures, external versus self-instructions in the acquisition and maintenance of fire safety skills. They proposed that self-instructions which incorporated self-verbalization, self-monitoring, self-evaluation and self-reinforcement would lead to greater maintenance in that subjects had more active control over his own behavior.

Forty-seven third grade students were used in this

study and placed in either an external instruction, self-instruction or a control group. The behavioral lessons which the subject engaged in consisted of four parts, a) trainer modeling - where the subjects were shown the correct responses, b) subject-guided trainer modeling - subjects described the correct responses as the trainer performed them, c) training - subjects performed the responses with immediate feedback and praise, and d) evaluation - subjects perform the responses with delayed feedback and praise. The external and the self-instruction groups differed in that in the external group during the four stages of intervention only motor responses were focused on. In the self-instructions group, subjects were trained correct motor responses as well as how to self-instruct (to think before doing - ask one's self "What do I need to do?", "How can I do it?", and to reinforce one's self after having completed the task).

These researchers found that both methods of instructions were effective in training children fire safety skills. Further little differences were seen between the groups in follow-ups up to the fourth month. Both groups' levels of responding decline slightly up to this point. At the fifth follow-up (eight months) both groups showed significantly greater decline in responding as compared to response levels over the first four

months. However, it was found that subjects in the self-instruction group response levels tended to have a more gradual decline over the time period where as external instruction subjects tended to have a more drastic, immediate decline. These data lend support to the notion that self-regulatory, self-control components of a self-instructional strategy aids in facilitating the maintenance of behavior.

The research of Jones and colleagues has shown that behavioral and cognitive behavioral strategies are effective in teaching children fire safety skills. It also illustrates that the implementation of cognitive-behavioral strategies serve to facilitate maintenance and generalization of these skills once acquired.

In a recent study Jones et al. (unpublished manuscript) applied the cognitive-behavioral fire safety program to children's fear of fire given its high prevalence among young children. This study was conducted to begin looking at the efficacy of cognitive self-instructional fire safety training in reducing children's fear of fire. The assumption was that children who possess knowledge of what to do in a fire situation would be less afraid as a result.

Thirty-seven third grade students were placed in either of two groups, a behavioral or a behavioral plus cognitive elaboration group, whereby they were taught fire

safety skills. The study yielded some very interesting findings. The authors found that fire safety training did lead to decrements in fear. There was also a trend for behavioral training plus cognitive elaboration producing greater fear reduction than a sole behavioral group. These trends were found to be interesting and in need of further research.

#### Summary and Objectives

In summary, fears in children have been viewed as a part of normal development. These fears become of clinical concern when they develop into more severe fears. This study serves a preventive as well as eliminative function in that it aims to reduce moderate levels of children's fears thus preventing them from developing into more severe fears or phobias.

Several strategies have been utilized in the literature to reduce children's fears, some of which have been wrought with problems and limitations. The present study will focus on cognitive strategies of reducing children's fears in attempts to avoid some of the problems inherent in systematic desensitization, modeling, contingency management and some of the other behavioral strategies. Further, cognitive strategies will be implemented in efforts to instill greater maintenance of behavior and therapeutic outcome. The cognitive strategy that will be employed is that of self-instructions. Two

variants of this strategy will be used in the reduction of the target fear of fire.

Fear of fire was deemed an appropriate one for intervention because of its high prevalence among children of all ages. It also was found to be one especially amenable to cognitive self-instructional procedures. Meichenbaum (1971) used these procedures to successfully teach impulsive children to control their behaviors and focus their attention. Since the behaviors displayed by individuals in a fire situation are much like those displayed by impulsive individuals these cognitive attention control strategies were thought to be useful techniques for reducing panicky and fearful behavior and cognitions in fire fearful individuals. Lastly, this fear was an appropriate one for study in that in recent exploratory research trends were seen towards a reduction in children's fear of fire as a result of fire safety training and cognitive strategies.

To summarize the above mentioned points, cognitive strategies were used to reduce children's fear of fire because of the following:

- 1) to avoid some of the problems inherent in some of the other behavioral strategies
- 2) to instill greater maintenance of behavior and therapeutic outcome and
- 3) evidence supports the effectiveness of cognitive

strategies in reducing impulsive behaviors (such as thows displayed in a fire fearful situation).

The present study expanded upon the above mentioned exploratory research using two variants of a cognitive self-instructional strategy to reduce children's fears. The two procedures used included self-instructional training of fire safety skills and a self-instructional fear reduction technique whereby subjects instructed themselves to be less afraid. The fire safety procedure was compared to a fire safety plus fear reduction procedure to determine the efficacy of a specific self-instructional fear reduction component. The underlying notion of the study was that children who learned fire safety skills or learned safe ways of responding in a fire situation would show a greater reduction in fear than those who did not learn the skills. Further, children who learned fire safety skills plus participated in fear reduction exercises were expected to display less fear than those learning fire safety skills only.

This study also examined the relationship between children's level of locus of control and their levels of fear. Previous research (Ollendick, 1983) has shown that the amount of fear children possess correlates negatively with their locus of control scores. In essence children who have a more internal locus of control tend to be less

fearful and vice versa. These children tend to view situations and events internally believing that they have control over what happens to them while children who have a more external locus of control view things externally and assume that other people or things control or are responsible for events in their lives.

With this in mind locus of control can be very important when using cognitive self-control strategies. It is likely that self-control strategies would be most effective with and most beneficial to those subjects who possess internal rather than external locus of control. This is likely to be the case in that internally controlled individuals possess a sense of self-control prior to any training, unlike individuals possessing external locus of control, which could enhance and facilitate the treatment.

In this study however, locus of control was not used to predict the effectiveness of training methods but yet to replicate the negative relationship between fear and locus of control found in the study done by Ollendick (1983).

### Hypotheses

The major hypotheses of the study are as follows:

- 1) Children will acquire safe fire escape skills as a result of fire safety training, indicated by high percentage scores of correct behavioral responses.

2) Fire safety training will have an effect on children's fear of fire. The level of fear is expected to decrease as a result of training as indicated by decrements in levels of fear on the fire fear item of the Fear Survey Schedule for Children-Revised (FSSC-R), and the Fire Fear Inventory (FFI).

3) Reduction in fire fear is expected to generalize to other fears as indicated by reduced scores on the FSSC-R.

4) Children's levels of fear (fire related fear in particular) will be decreased more by training in fire safety skills plus a cognitive fear reduction technique than by training in fire safety skills alone.

5) Levels of fear (fire related fear in particular) are expected to correlate inversely with the amount of behavioral skills learned and retained.

6) Safe fire escape responding in all treatment groups, indicated by high percentage scores of correct behavioral responses are expected to maintain over time.

7) Decreased levels of general and fire related fear are expected to maintain over time. Levels of fear in the combination (fire safety plus fear reduction) group are expected to remain lower than levels reported by other groups.

8) A negative correlation is expected between children's locus of control and level of general and fire related fear.

## METHODS

### Subjects

The subjects that participated in this study included 48 second and third grade students from Christiansburg Elementary School in Christiansburg, Virginia. There were 26 females and 22 males. They ranged in age from 7.6 to 10.5 with the median age being 8.10 (ages taken at five month follow-up). They were predominantly white students of normal intelligence. Learning Disabled and mentally retarded students were not included in the study. All subjects were pretested in their classrooms in order to assess their levels of fear. Only those subjects indicating "a lot" on the fear of fire-getting burned item of the Fear Survey Schedule for Children-Revised were included in the study. This endorsement indicated that these children were very afraid of fire and thereby suitable candidates for fear reduction strategies. Subjects also underwent behavioral assessments to determine their levels of appropriate fire-safety responding. Following assessments subjects were randomly assigned to one of four groups - the Fire Safety Training group; the Fire Safety Plus Fear Reduction group; the Attentional Control group or the Waiting List Control group. Instruments

The instruments that were used was the Fear Survey Schedule for Children - Revised (FSSC-R) (Ollendick,

1983) to assess levels and numbers of children's fears in general. This scale is an 80 item questionnaire whereby the subject must check "none", "some", or "a lot" as to the degree to which they are afraid of each stimulus item. A score of 80 indicates the minimum level of fear one could experience and 240 is the maximum score that can be achieved. This instrument has been shown to have high reliability and validity. Reliability, determined by internal consistency was .948. Test - retest reliability was .82 with a one week intermission between testing and .55 with a three month intermission. The scale has been shown to be highly valid in that it reveals the sex differences in children's fears and it also distinguishes between normal and phobic samples. Convergent and discriminant validity was shown by correlation of the scale with other self report measures; greater fear scores correlated highly with higher levels of trait anxiety and lower fear scores correlated with heightened self-concept and internal locus of control.

To assess children's levels of fire related fear, the Fire Fear Inventory (Jones, 1981) was used. On this scale subjects must also check "none", "some" or "a lot" to indicate the degree to which they are afraid of each item. Scores on this scale range from 33 to 99, with 33 being the least possible levels of fear and 99 being the highest possible level of fear. This scale has been

shown to be a highly reliable instrument for assessing children's fear of fire. Test - retest reliability was found to be .80 for this scale.

A measure of locus of control was given to subjects at all three assessments. This measure was given as it has been shown to correlate with levels of fear. Internal locus of control has been shown to correlate negatively with high levels of fear (Ollendick et al., 1985). An abridged version of the Nowicki-Strickland locus of control scale for children was used in the present study. This scale has been shown to have high test-retest reliabilities of .63, .66 and .71 for third, seventh and tenth grade samples respectively tested six weeks apart. Internal consistency values were reported as .63 for grades 3-5, .68 for grades 6-8, .74 for grades 9-11 and .81 for grade 12.

This scale was also tested for construct validity, by correlating it with similar measures. Correlations with the Intellectual Achievement Responsibility scale ranged from .31 to .51. and the adult version of the scale was correlated with the Rotter yielding correlation scores ranging from .38 to .61.

Lastly, to assess children's knowledge of correct fire escape responding, children's behavioral responses was observed and checked as correct or incorrect according to criteria used and validated by Jones, et al. (1981).

(See Appendix C for behavior checklist.) Correct responses which occurred in the proper sequence were marked in the sequence column and those that were performed correctly regardless of sequence were marked in the occurrence column. One point was given for each correct response performed in sequence. The total correct responses will be divided by the total possible correct responses and multiplied by 100 to obtain a percentage score of correct responding.

#### Experimenters

The experimenters consisted of a clinical psychology graduate student and six undergraduate psychology students. The graduate student and two of the undergraduate students served as trainers for the two experimental groups and also acted as leader of the attentional control group.

Of the six students four served as behavioral assessors. These students observed the subjects' fire escape behavior and checked their responses as being correct or incorrect according to the previously mentioned criteria. Two of the raters actually obtained assessment data at a given time while the other two served as reliability checkers. One-third of the total assessments done were checked for reliability. All experimenters underwent a two week (three two hour sessions per week) training period prior to onset of the study. They also

underwent refresher training sessions after a five month interval. Experimental observers' training consisted of modeling, role playing, corrective feedback, social reinforcement and practice. The observers underwent training until a criterion of 95% inter-observer reliability was met.

### Procedure

All subjects in the second and third grade classes were given the pretest measures (the FSSC-R, the FFI and the N-S Scale) as a group in their respective classrooms. Children who fit the fear criterion (" a lot") were then randomly assigned to groups. Children were then assessed individually in a simulated situation to determine their levels of appropriate escape responding.

After undergoing all preassessments, subjects (except for those in the waiting list control group) were seen in groups of four for training. Training sessions lasted 50 to 60 minutes and were held on three consecutive days. A total of three fire situations were taught, with a different situation being taught each day. In the fear reduction group (fire safety plus fear reduction strategy), subjects were trained appropriate fire safety responding for approximately 25 minutes and a self-instructional fear reduction strategy for the last 25 to 30 minutes of the session. Subjects in the non-fear reduction group (fire safety alone) were trained fire

safety responding for approximately 25 minutes and engaged in the reciting of behavioral steps learned during first half of session during the last 25 minutes. Lastly, subjects in the attentional control group engaged in discussion with the experimenter concerning fire related incidences, fire-related stories and also drawing pictures. No skills training of any kind was done in these sessions. These sessions lasted for 50 minutes as well. The waiting list control group was only pretested and post tested.

The first part of training in the experimental groups (both fear and non-fear groups) consisted of teaching the subjects the process of self-instructions. The trainer explained to the children that they should always a) ask, "What is happening?" b) describe what is happening in their bedroom, c) ask, "What is it that I need to do?" before responding, d) "describe each step before performing it" (e.g., say, "I crawl to the door" before crawling to the door), e) ask "How did I do?" and f) answer "good" or "great" when they are done responding.

The next part of the training for both experimental groups consisted of four parts. The first was trainer modeling where the trainer demonstrated the correct verbalizations while modeling the correct motor responses leading to safe escape from a fire situation (e.g., "What is happening? There is just a little smoke ... "What do I

need to do? I should roll or slide out of the bed ... then I should crawl to the door ... then I should feel the bottom of the door to see if it's hot etc. ... I'm done, now how did I do? ... I did a good job.") (steps listed in appendix C). The second phase was subject-guided trainer modeling where the subjects as a group stated or verbalized the appropriate responses and instructions above as the trainer performed the sequence of motor behaviors. The trainer's performance provided feedback for the subjects. When the children hesitated they were prompted by the trainer.

Trainer-guidance was the third stage wherein subjects performed the fire emergency steps individually while the trainer verbalized the appropriate instructions. The child received immediate trainer and peer feedback and praise. When the child made an error the trainer verbalized and modeled the correct response until the child performed it correctly one time at which point the child was allowed to proceed responding in the sequence. The last phase of the training was called self-instruction. During this stage the child was required to engage in the self-instructional responses individually while simultaneously performing the fire emergency steps. The subjects completed the steps in the sequence with delayed feedback and praise.

During the last 25 minutes of the session, the fire

safety group participated in the recitation of the behavioral steps. This recitation was done first as a group and then by each subject individually. Subjects did not perform the steps behaviorally but only verbalized them aloud. This component was added as a control for the repetition of steps used in the fire safety/fear reduction group during the last 25 minute phase.

In the fear reduction group the last half of the training session focused on using the self-instructional strategy learned in the first half of training to reduce children's fears. The trainer said to the subjects "Sometimes a lot of kids feel afraid of fire or feel worried about getting burned in a fire. We're going to learn some ways to keep us from feeling this way by talking to ourselves the way we did to learn how to get out of a burning house." The trainer proceeded by saying "We are going to ask ourselves, What is happening? and we will say I am feeling afraid of fire and worrying that I will get burned. Then we should ask ourselves What is it that I should I do? and we can answer by saying, I should relax and calm down, I can take care of myself because I know what to do in a fire. "Now how am I doing?, I'm doing great, I'm feeling better already." The trainer verbalized the appropriate instructions twice which was then followed by group verbalization.

The trainer demonstrates a frightful expression as

he answers, I'm feeling afraid of fire. He further demonstrates a gradual relaxing state as he proceeds with the coping instructions. This relaxed state is evidenced by the experimenter's frightful facial expression becoming more calm and by his speech becoming slower and less pitched.

Following this general self-instructional procedure, the trainer modeled self-instructional strategies with one of three specific fire fear stimuli (Hearing a burning fire in your house - Day 1, Hearing a crash somewhere in your house - Day 2 and Feeling the bedroom becoming hotter - Day 3). These items were chosen because these items were endorsed by at least 50% of the subjects as stimuli in which they feared "a lot" (Jones, unpublished manuscript).

The trainer began the instructions for the specific situations by saying "now we are going to pretend that we are in a situation where we might be afraid and we will again talk to ourselves so we won't be afraid anymore. Let's pretend that we wake up in the middle of the night and we hear fire inside our house. We hear the sound of cracking wood outside. We wake up feeling really scared. The first thing that we want to do is to ask ourselves, What is happening? and then answer by saying I can hear fire in my house. What is it that I should do? I should relax and calm down, I can take care of myself because I

know what to do in a fire. I know that I should roll out of bed and get into a crawl position, I should crawl from my bed over to my bedroom door ... last step learned that day. Now how am I doing? I am doing great, I'm feeling better already".

The general self-instructional procedure followed by the self-instructions for the specific fire fear situation taught that day to place during the last half of the training session. As part of the specific self-instructional procedure subjects verbalized the appropriate fire safety skills steps which were learned in the first half of the session. For instance on Day 1 in the Fire safety/fear reduction group the session consisted of the following:

First 25 minutes - fire safety training

Second 25-30 minutes - fear reduction strategy

- General self-instructional fear reduction procedure
- Fear reduction procedure using specific fire situation

"I should relax and calm down, I can take care of myself because I know what to do in a fire. I know that I should

- 1) Roll or slide out of bed onto the floor
- 2) then get into a crawl position on all

fours ...

- 11) I reach the end of the stairs and go outside my house.

This format was again followed for Days 2 and 3, except on Day 2 the 18 steps pertaining to situation 3 (Fire in your path) and on Day 3 the 13 steps pertaining to situation 2 (Hot air rushing in the door) were used. Subjects were given praise and corrective feedback throughout the session.

Subjects in the attention control group were not given any type of fire safety skills training nor were they taught any fear reduction strategies. These sessions which were also 50 minutes were spent talking about fire related incidences, telling stories about fires and drawing fire related pictures. On Day 1 children and the experimenter told of factual fire related incidences in which they knew. On Day 2 they told fictional stories regarding fire and on Day 3 they drew pictures to correspond to their stories. On each day the experimenter began the storytelling. Detailed training scripts for all three groups can be found in Appendices A and B.

Immediately following training on the third day, subjects were post tested to determine the amount of behavioral skills which they had acquired. Subjects in the waiting list control group which was involved in no type of training were also post tested within a week of

initial assessment. Subjects were also post tested on the three self report measures (FSSC-R, FFI and the NS scale) within three to four weeks of initial assessment in classroom settings.

Five months following post test the subjects were tested again on all of the self report measures as well as the behavioral measure. Between post test and follow-up subjects had no contact with the experimenter nor did they receive any information concerning the fire safety project.

## RESULTS

### Introduction

Several analyses were undertaken in the present experiment. A series of specific analyses were carried out in order to answer individual questions posed in the list of hypotheses. These analyses consisted of several one way analyses of variance (ANOVA). These ANOVAs were then followed by more conservative analyses which were performed for the purpose of summarizing the entire experiment. These analyses were 3 ( no. of assessments) x 4 (groups) repeated measures analyses of variance. First the results of the one way ANOVAs will be presented.

To make specific comparisons a series of one way ANOVAs were run across groups on each of the dependent measures included in the study. These measures included the behavioral percentage scores, the Fear Survey Schedule for Children-Revised (FSSC-R), the Fire Fear Inventory (FFI), the fear item (#34) from the FSSC-R, and the Nowicki-Strickland (NS) Locus of Control Scale. For each variable comparisons across groups were made at pretest, post test and follow-up. Further a one way ANOVA was run to look at difference scores between post test and follow-up to compare the amount of gain or loss of treatment effects as a result of time. Each variable will be presented separately, beginning with the Behavioral measure.

ONE WAY ANOVASBehavioral Assessment

Forty-eight observations were included in the pretest analyses. At post test, however, only 46 were included as two subjects were eliminated due to misunderstanding the instructions. At follow-up, again there were only 46 observations since two children moved prior to the behavioral follow-up assessments.

At pretest it was found that there were no significant differences between the groups. The F value was .95 and the p value was .42. This was expected as all children possessed near zero levels of safe fire behavior prior to training. As for post test, a significant difference was seen among the groups. The F value in this case was 875.75 which was significant at the  $p < .001$  level. This same analysis was done for follow-up data and also for difference scores from post to follow-up. These results showed a significant difference as well between groups with F values being 5.68 and 37.37 for follow-up and difference scores, respectively. These differences were significant at the  $p < .002$  level for follow-up data and  $p < .001$  for difference scores.

A Duncan's Multiple range test was used to determine the location of the differences revealed by one way ANOVAs. In an analysis of post test data this test yielded several group differences. It was shown that groups 1

(Fire Safety group) and 2 (Fire Safety/Fear Reduction group) differed significantly from groups 3 (Attention Control) and 4 (Waiting List Control). In other words these results indicate that groups 1 and 2 which were trained safe fire responding performed significantly better than groups who were not trained. This is support for hypothesis number one.

A Duncan's test was also performed using the follow-up data and difference scores from post test to follow-up. Results of these two tests were relatively consistent. It was found that group 2 was significantly different from all other groups at follow-up and had significantly less post test to follow-up decline in skills. In viewing the group means (listed in Table 1) it can be seen that all groups except group 2, returned to behavioral responding similar to that found prior to training.

#### FSSC-R Assessment

The next variable to be discussed is the FSSC-R. Several one way ANOVAs were run here as well. In these analyses 48 observations were included at pretest and post test. However before follow-up assessments were carried out on this measure one child had moved yeilding a total of 47 observations.

At pretest it was found that there were no significant differences among the groups as to the amount

of general fear reported. The F value for this ANOVA was 1.07 and the p value was .37. This finding was expected in as much as the subjects were randomly assigned to groups thus resulting in similar pretest scores.

Following training (at post test), however, significant differences were found. The F value here was 3.60 which was significant at the  $p < .02$  level. Results further showed that groups differed at follow-up yielding an F value of 3.00 which was significant at the  $p < .04$  level.

The ANOVA run to look at the amount of change in group scores from post test to follow-up was not significant.

The F value was 2.18 and the p value was .10. This test of differences was particularly relevant here as with the additional fear measures in that the amount of decrease or increase in treatment effectiveness over time was one of the major questions of interest. This issue is thought to be better assessed by the comparison of change scores between two points in time rather than by simply comparing a set of means at post test and then again at follow-up.

A Duncan's test was used to determine the location of the differences found at post test and follow-up. This test yielded significant differences between group 1 (Fire Safety) and groups 3 and 4 (Attention Control and the Waiting List Control) at post test. These results indicate that group 1 showed significantly less generalized fear than groups 3 and 4 following treatment.

TABLE 1

## GROUP MEANS - BEHAVIORAL PERCENTAGE SCORES

	Pretest	SD	Post test	SD	Follow-up	SD
Grp 1	8.17	3.70	93.89	9.30	13.50	11.1
Grp 2	12.20	4.16	98.05	3.19	34.61	36.71
Grp 3	10.43	9.94	11.79	4.06	7.59	2.71
Grp 4	11.81	4.70	11.58	3.76	3.27	3.46

Grp 1 = Fire Safety Group

Grp 2 = Fire Safety/Fear Reduction Group

Grp 3 = Attention Control Group

Grp 4 = Waiting List Control Group

SD = Standard Deviation

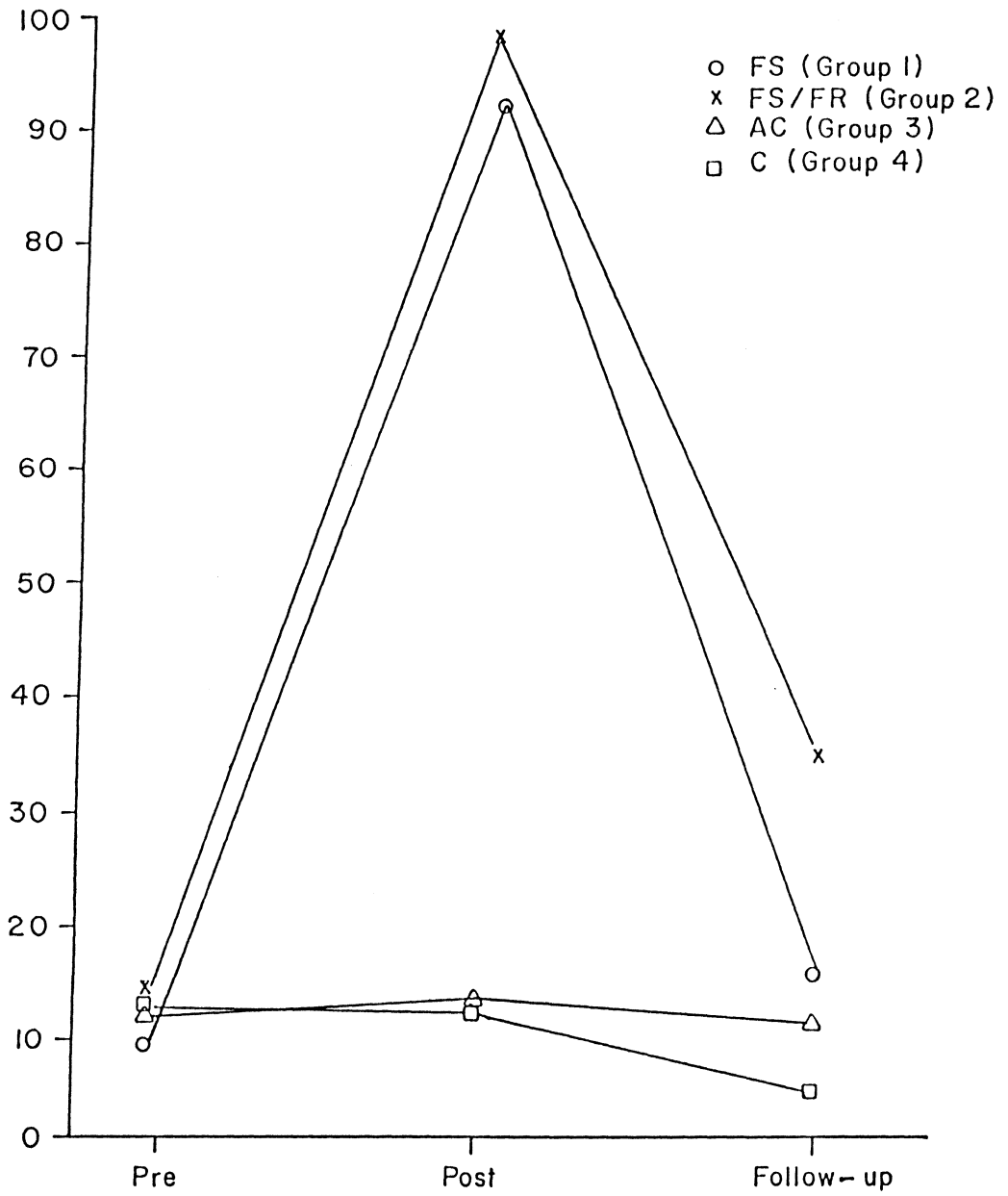


Figure 1. Group Means - Behavioral Data

TABLE 2

## GROUP MEANS - FSSC-R

	Pretest	Post test	Follow-up	Z
	SD	SD	SD	
Grp 1	146.58	113.00	124.63	12.90
	33.3	21.3		25.5
Grp 2	148.17	132.41	140.25	7.83
	23	27.7		14.9
Grp 3	161.50	134.08	150.25	16.16
	20.1	26.4		21.4
Grp 4	145.92	144.91	136.00	-7.63
	19.7	20.6		19.9

Grp 1 = Fire Safety Group

Grp 2 = Fire Safety/Fear Reduction Group

Grp 3 = Attention Control Group

Grp 4 = Waiting List Control Group

Z = Differences in Xs from post test to follow-up

SD = Standard Deviation

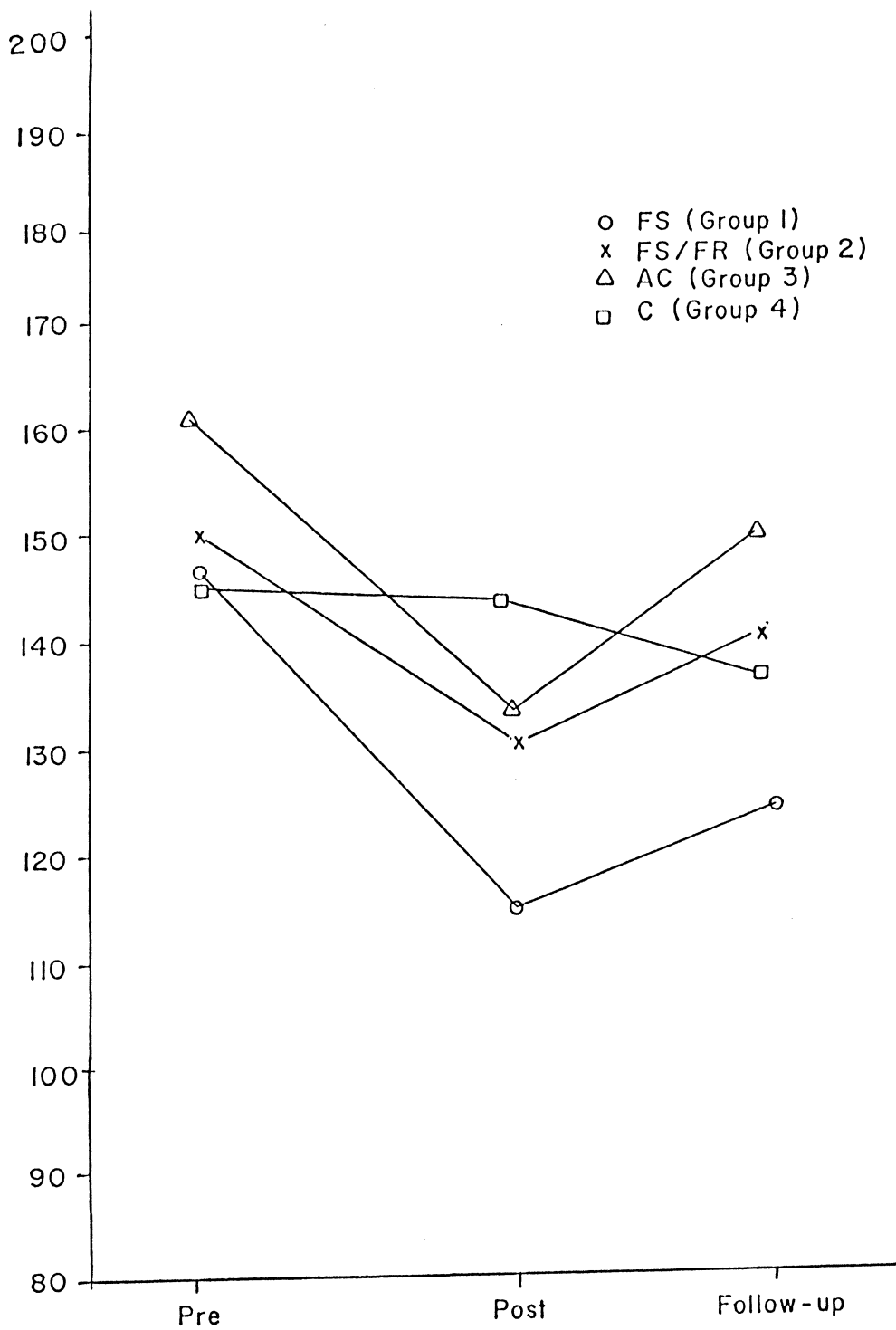


Figure 2. Group Means - FSSC-R Data

TABLE 3

## GROUP MEANS - FFI

	Pretest	Post test	Y	Follow-up	Z
	SD	SD		SD	
Grp 1	56.00	46.08	9.91	54.45	9.63
	13.3	9.5		15.1	
Grp 2	59.16	55.75	3.41	59.41	3.66
	9.4	9.2		6.6	
Grp 3	61.91	57.08	4.83	60.66	3.58
	13.9	10.7		11.2	
Grp 4	70.33	69.50	.83	63.45	-5.81
	6.9	7.7		12.1	

Grp 1 = Fire Safety Group

Grp 2 = Fire Safety/Fear Reduction Group

Grp 3 = Attention Control Group

Grp 4 = Waiting List Control Group

Y = Differences in Xs from pre to post test

Z = Differences in Xs from post test to follow-up

SD = Standard Deviation

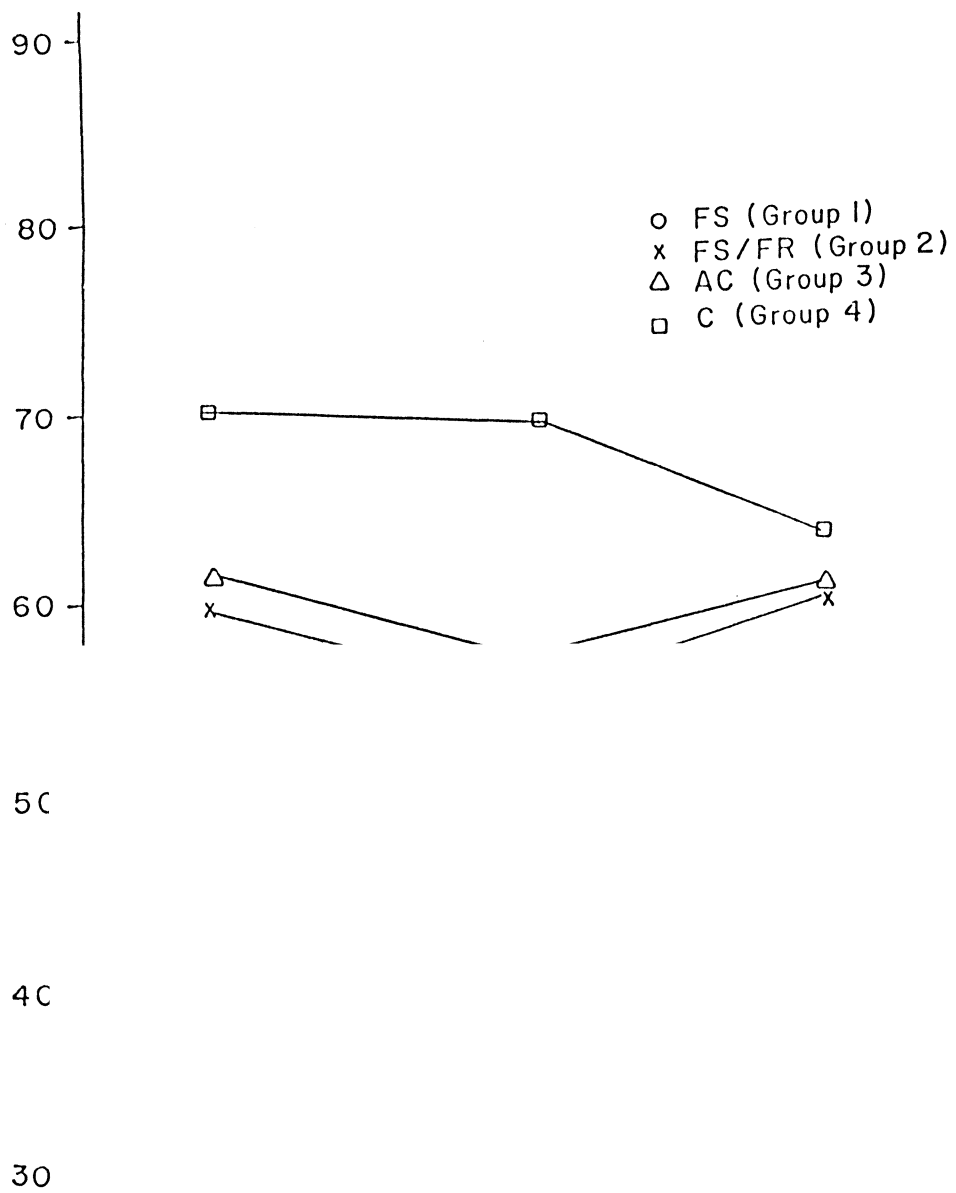


TABLE 4

## GROUP MEANS - FIRE ITEM OF FSSC-R

	Pretest	Post test	Follow-up	Z
	SD	SD	SD	
Grp 1	3.00	2.25	2.63	.45
	0	.86	25.5	
Grp 2	3.00	2.16	2.25	.08
	0	.83	14.9	
Grp 3	3.00	2.08	2.66	.58
	0	.79	21.4	
Grp 4	3.00	2.41	2.27	-.09
	0	.66	19.9	

Grp 1 = Fire Safety Group

Grp 2 = Fire Safety/Fear Reduction Group

Grp 3 = Attention Control Group

Grp 4 = Waiting List Control Group

Z = Differences in Xs from post test to follow-up

SD = Standard Deviation

TABLE 5

## GROUP MEANS - NS (LOC)

	Pretest	SD	Post test	SD	Follow-up	SD
Grp 1	11.91	2.53	11.58	3.26	12.36	4.15
Grp 2	11.25	2.89	12.50	3.89	13.83	3.24
Grp 3	11.16	4.58	9.50	4.46	12.16	2.58
Grp 4	12.16	3.01	12.66	3.11	12.09	3.33

Grp 1 = Fire Safety Group

Grp 2 = Fire Safety/Fear Reduction Group

Grp 3 = Attention Control Group

Grp 4 = Waiting List Control Group

SD = Standard Deviation

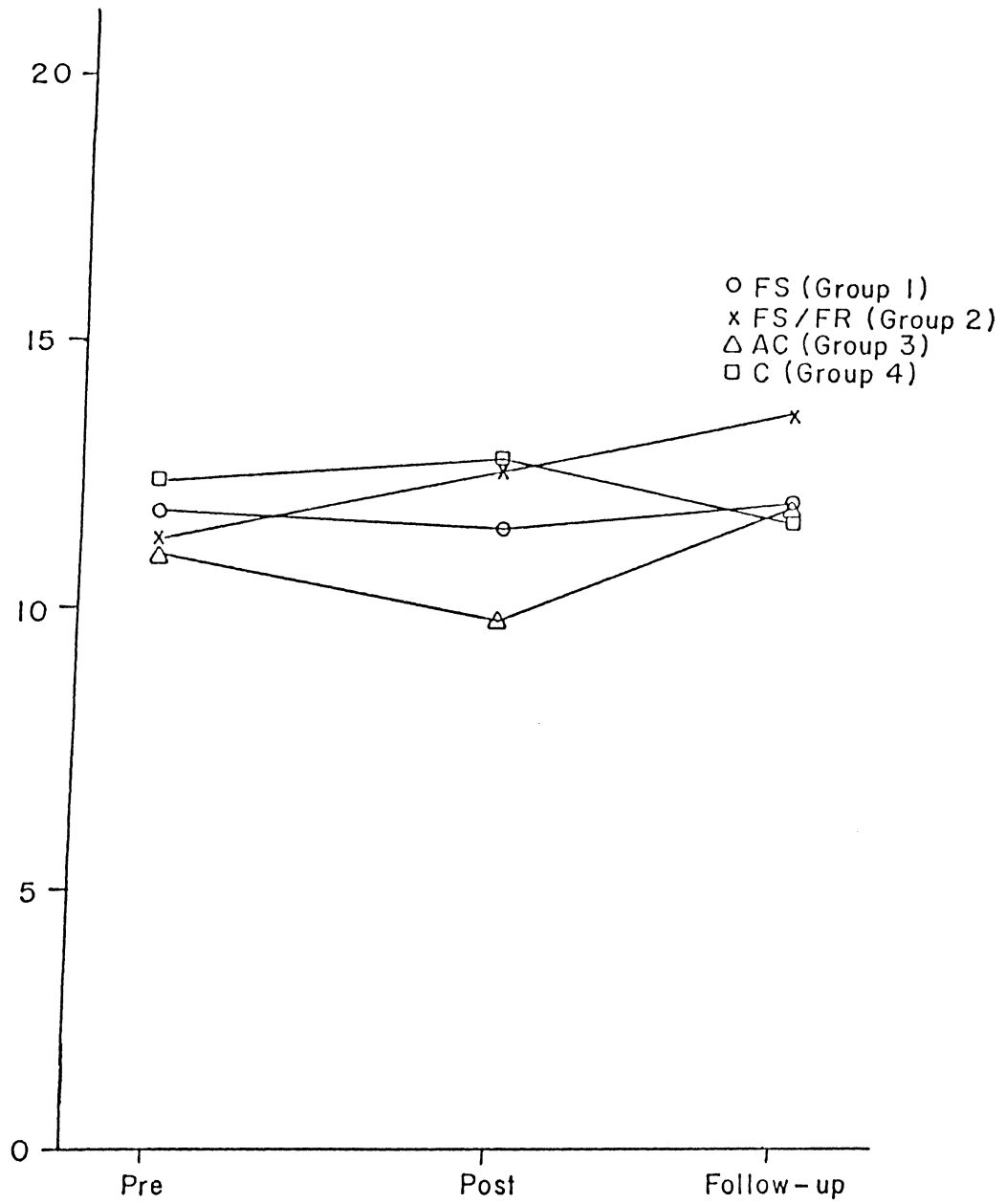


Figure 4. Group Means - NS(LOC) Data

In essence, subjects who were given fire safety skills training showed less fear than subjects who were not given the training. There was no significant difference between Group 2 and groups 1, 3 and 4. These results suggest that the treatment strategy used in group 1 (fire safety skills only) may have had the most impact on the reduction of subjects' generalized fear. Further as seen in a display of group means (Table 2 - Post test) groups 2 and 3 were almost identical in terms of the amount of generalized fear reported following treatment. These results, along with the FFI and the fire item post test results, support conclusions drawn in the discussion of hypothesis four.

The Duncan's test was also run on the follow-up means to determine differences between groups. There was a significant difference found between groups 1 and 3. These results indicate that the mean in Group 1 was significantly lower than that in Group 3 which is suggestive that at this time Group 1 reported less fear than Group 3. This however does not take into account the amount of initial change or subsequent change as a result of time. This can be seen in comparing difference scores across groups from post test to follow-up (Table 2 - Z). Although not significant, of the three groups receiving some form of treatment (Grps 1, 2 and 3) group 2 (fire safety and fear reduction strategy) tended to show less of an increase in fear over time. Group 4 (group receiving

no form of treatment) was the only group to report slightly decreased levels of fear.

#### FFI\_Assessment

The next dependent measure to be presented is that of the FFI. A one way ANOVA was run on pretest, post test and follow-up data and also difference scores from pre to post test and from post test to follow-up. Forty-eight observations were included in the pretest and post test analyses. At follow-up however there were only 47 observations as one child had moved.

At pretest a significant difference was found across groups even though random assignment had been carried out. The F value was 3.56 which was significant at the  $p < .02$  level. A Duncan's test indicated that groups 1 and 2 (experimental groups) were significantly different from group 4 (waiting list control group) prior to training. Because of these initial differences at pretest, difference scores were analyzed here to compare the amount of change across groups from pretest to post test. The results of this ANOVA were not significant as the F value was 1.46 and the p value was .23. However in veiwing the difference scores (Table 3 - Y) it can be seen that the mean reduction in fire fear in groups 1, 2, and 3 (groups receiving any sort of treatment) were quite similar, with group 1 slightly higher. Each of these means were substantially greater than that of the control group.

A one way ANOVA was done also to compare groups on their FFI follow-up scores and their amount of change from post test to follow-up. These F values of 1.16 and 2.60 were not significant as the p values were .33 and .06. In veiwing the group difference scores (Table 3 - Z) the amount of increase in fear over time in groups 1, 2 and 3 appear to be relatively equal. As on the FSSC-R group 4 was the only group to show any decrease (although slight) in fear.

#### Fire item (FSSC-R) Assessment

The fourth variable that was analyzed via one way ANOVAs was the fire item (item #34) of the FSSC-R. On this measure like on the FSSC-R and the FFI there were 48 observations at pretest and post test and 47 at follow-up. This is due to the absence of the same child.

At pretest all subjects scores were the same on this item as all subjects had to score 3 ("a lot") on this item in order to be included in the study. Therefore no analyses were done for pretest scores as it was obvious that there were no differences among the groups. One way ANOVAs were performed on post test and follow-up data as well as change scores from post to follow-up assessments. There were no significant differences found among groups based on any of these analyses. F and p values were as follows: F=.39, p=.76 - post test ; F=.90, p=.45 - follow-up and F=1.51, p=.22 - difference scores. In

observing the difference scores from post to follow-up (Table 4 - Z) it was seen that although not significant group 2 tended to show less of an increase in fear than group 1 and group 3. Again, group 4 (the control group) was the only group to show any decrease in fear at follow-up.

#### NS (LOC) Assessment

The final variable that was analyzed using one way ANOVAs was the NS (LOC). Like the previously mentioned measures there were 48 observations included in the pretest and post test analyses and 47 in the follow-up analyses.

There were no significant differences found with this measure at pre, post or follow-up assessment nor were there differences found in change scores. F and p values are listed as follows: Pretest -  $F=.26$  and  $p=.85$ ; Post test -  $F= 1.83$  and  $p=.15$ ; Follow-up -  $F=.71$  and  $p=.55$ . Group means appear to be similar and consistent across time (Table 5).

#### UNIVARIATE REPEATED MEASURES ANOVAs

Univariate repeated measures ANOVAs were performed on the data for four of the dependent measures used in the study. The fire item from the FSSC-R was not included in these analyses because this item demonstrated little variability and these analyses were deemed inappropriate.

These ANOVAs looked at comparisons across groups and

tested for group main effects, time main effects and interactions between group and time. Several significant results emerged from these analyses. It was found that there were significant main effects for group on the behavioral percentage scores, FSSC-R and the FFI. This analysis yielded no significant group effect on the NS Locus of Control scale. The group effect for the FSSC-R was significant at the  $p < .05$  level. The group effect for the FFI and the behavioral percentage scores were significant at the  $p < .001$  level. These results indicate that there are indeed differences among the four groups (Fire Safety, Fire Safety/Fear Reduction, Attention Control and Waiting List Control) on the FSSC-R, the FFI and the Behavioral percentage scores. The result of non significance on the NS scale indicates that there was no difference between the groups in terms of the nature of their locus of control.

A main effect of time was also found to be significant for the FSSC-R, the FFI and the Behavioral percentage scores. The time effect for the FFI was significant at the  $p < .02$  level while the time effect for the FSSC-R and the behavioral scores were significant at the  $p < .001$  level. These results indicate that differences on these measures do occur as a result of time. Again there was no significant time effect found for the NS scale.

These analyses were carried out further with each of

TABLE 6

## UNIVARIATE REPEATED MEASURES ANALYSES OF VARIANCE

Dependent Variable	Group		Time		Group x Time Interaction	
	F	p	F	p	F	p
FSSC-R	2.69	.05*	14.68	.001*	2.03	.07
FFI	7.30	.001*	3.80	.02*	1.68	.13
Behav. % scores	84.25	.001*	169.01	.001*	51.26	.001*
NS (LOC)	.70	.55	2.89	.06	2.11	.06

the abovementioned variables to test for group by time interactions. There was only one significant interaction found and this was on the behavioral scores. This group x time interaction was found to be significant at the  $p < .001$  level. These results indicate that as a function of group and time in combination, consistent differences occur on subjects' behavioral performance scores. These results are listed for each of the four measures in Table 6.

#### INDEPENDENT t TESTS

A group of independent t tests were run to address the generalization issue in the third hypothesis. These tests compared the difference scores between pre and post assessment on the FSSC-R. These comparisons were made between group 1 and group 4, between group 2 and group 4 and between group 3 and group 4. These analyses were run to determine whether groups receiving some form of training would result in significantly greater reductions in generalized fear than those found in the control group which received no training.

The comparison made between groups 1 and 4 yielded a significant difference at the  $p < .002$  level. The T value for this analysis was 3.17 and the df was 22. With regards to the comparison between group 2 and group 4, a marginal significance was found at the  $p < .06$  level. The T value was 1.53 and the df was 22. Lastly in comparisons

made between groups 3 and 4 a significant difference was found at the  $p < .001$  level with  $T$  equalling 3.43 at 16.6 df. These results show that the reductions in fear from pretest to post test in each of the above groups was significantly greater than those seen in the control group.

#### PEARSON PRODUCT MOMENT CORRELATION COEFFICIENTS

To look at the extent to which children's level of fear correlated with the amount of behavioral skills possessed, a Pearson product moment correlation coefficient was performed. A correlation matrix was implemented which looked at the relationship between each of the three fear measures and the behavioral scores at the three points in time. These analyses indicated no relationship between the amount of behavioral skills possessed and children's level of fear at pretest on all of the fear measures.

At post test there were some significant correlations. On the FSSC-R and the FFI, significant negative correlations were found between these measures and behavioral scores. Pearson coefficients were  $-.35$  for the FSSC-R and  $-.51$  for the FFI. These coefficients were significant at the  $p < .008$  level for the FSSC-R and the  $p < .001$  level for the FFI. There was no significant correlation found involving the fire item of the FSSC-R.

Lastly, correlations made with follow-up data failed to reach significance on all three measures. Results from these analyses can be seen in Table 7.

The last analyses run was that of a Pearson product moment correlation coefficient matrix including the NS scale and the fear measures. The analyses sought to determine the relationship between children's locus of control as reported on the NS scale with their reported level of fear on each of the fear measures. These analyses were done using all 48 of the subjects involved in the study and at each of the points in time. Three significant results were found. At pretest, children's NS locus of control scores correlated negatively with their scores on the FSSC-R. The Pearson coefficient here was  $-.33$  which was significant at the  $p < .01$  level. Correlations between the NS scale and the fear measures were not significant at pretest. At post test there were no significant relationships seen between locus of control and fear. At follow-up however there was a significant correlation seen between the NS scale and the FSSC-R and the FFI. On the FSSC-R and the FFI respectively, the Pearson coefficients were  $-.25$  and  $-.26$  which were significant at the  $p < .04$  level. There was no significant correlation found between the NS scale and the fire item from the FSSC-R. These results can be seen in Table 8.

RELIABILITY OF RATERS

Interrater reliability for behavioral observations was determined by calculating the percentage of agreement between raters. Percentage agreement was determined by dividing the number of agreements by the the number of agreements plus disagreements and then dividing by 100. Forty-eight of the behavioral assessments were checked for reliability which was one third of the total observations. Overall interrater reliability was 94%.

TABLE 7

	Behav pre	Behav post	Behav follow-up
FSSC-R pre	r = -.11 p = .248		
FFI pre	r = .13 p = .202		
Fire item FSSC-R pre	r = 0.00 p = .5		
FSSC-R post		r = -.35 p = .008*	
FFI post		r = -.51 p = .001*	
Fire item FSSC-R post		r = -.05 p = .378	
FSSC-R foll			r = -.05 p = .377
FFI foll			r = -.05 p = .362
Fire item FSSC-R foll			r = -.14 p = .174

\* -  $P < .05$

TABLE 8

	NS pre	NS post	NS follow-up
FSSC-R pre	r = $-.33$ p = $.01*$		
FSSC-R post		r = $.044$ p = $.38$	
FSSC-R follow up			r = $-.25$ p = $.04*$
FFI pre	r = $-.17$ p = $.12$		
FFI post		r = $.17$ p = $.12$	
FFI follow up			r = $-.26$ p = $.04*$
Fire item pre	r = $0.00$ p = $1.00$		
Fire item post		r = $.034$ p = $.408$	
Fire item follow			r = $-.17$ p = $.12$

\* -  $P < .05$

## DISCUSSION

The primary purpose of the present study was to investigate the effects of cognitive self-instructional strategies on children's fear of fire. Self-instructions were used in two separate intervention procedures. While both of these procedures included self-instructional training of fire safety skills, only one involved a self-instructional fear reduction component whereby subjects instructed themselves to be less afraid. The fire safety alone procedure was compared to a fire safety plus fear reduction procedure in an effort to delineate the specific effects of a fear reduction strategy. It was hypothesized that children who learned a specific method for reducing their fears along with general fire safety skills training would show the greatest decrease in fire related fear.

Each of the eight hypotheses of this study will now be presented and discussed. Those hypotheses as stated earlier were:

- 1) Children will acquire safe fire escape skills as a result of fire safety training, indicated by high percentage scores of correct behavioral responses.
- 2) Fire safety training will have an effect on children's fear of fire. The level of fear is expected to decrease as a result of training as indicated by decrements in levels of fear on the fire item of the Fear Survey

Schedule for Children-Revised (FSSC-R) and the Fire Fear Inventory (FFI).

3) Reduction in fire fear is expected to generalize to other fears as indicated by reduced scores on the FSSC-R.

4) Children's levels of fear (fire related fear in particular) will be decreased more by training in fire safety skills plus a cognitive fear reduction technique than by training in fire safety skills alone.

5) Levels of fear (fire related fear in particular) are expected to correlate inversely with the amount of behavioral skills learned and retained.

6) Safe fire escape responding in all treatment groups, indicated by high percentage scores of correct behavioral responses are expected to maintain over time.

7) Decreased levels of general and fire related fear are expected to maintain over time. Levels of fear in the combination (fire safety plus fear reduction) group are expected to remain lower than levels reported by other groups.

8) A negative correlation is expected between children's locus of control and level of general and fire related fear.

The first major hypothesis focused on the effectiveness of the fire safety training program in teaching children safe responding in a fire situation. Three fire situations were used which included the

following scenes:

- 1) nothing blocking the path
- 2) hot air rushing in the door, and
- 3) fire blocking the path.

At pretest, all subjects were individually placed in a simulated bedroom setting and were observed by trained raters. These raters assessed the level of safe skills displayed by the subjects in each of the above situations. It was found that all subjects possessed a near zero level of safe responding. The behaviors that many of the children engaged in consisted of climbing out of the window, walking instead of crawling, and simply remaining in bed. These behaviors were deemed unsafe and could possibly prove fatal (Jones et al. 1981).

As detailed earlier the experimental subjects were trained following the pre-assessment in groups of four. Subsequent to training, these subjects were post tested to determine the effects of the training program. It was found that children who had undergone training displayed a significant increase in safe behavioral skills upon post test. This increase was significant as post test means for training groups were near 100 percent. Children in the control groups (Attention Control and Control) also post tested within a one week period demonstrated no significant changes in their performance from pre to post assessment. Given that these subjects were exposed to all

the same conditions with the exception of training, one is able to attribute the increase in performance to the training program. Hypothesis number one was then confirmed as the results show that children are indeed able to acquire safe skills as a result of fire safety training. These results are consistent with previous findings (Jones et al. 1981b; Jones et al. 1984; Jones and Haney, 1984).

The second hypothesis examined the reduction of subjects' levels of fire related fear as a result of fire safety training. All subjects in the study were pretested in classroom settings with three questionnaires one of which measured fire related fear specifically. This scale was the Fire Fear Inventory (FFI). A second measure engaged consisted of the fire item (number 37) on the FSSC-R. This item was also used as criterion for inclusion in the study. Subjects had to endorse "a lot" to item number 37, fear of fire-getting burned, indicating that they were very afraid of the stimulus in question.

At pretest all subjects involved in the study (37% of the 130 children screened) possessed a high degree of fire related fear as indicated by their response, "a lot", to the fire fear item. A more specific measure of this fear was then taken by using the FFI. Based on averaged total scores of this questionnaire, subjects levels of fire fear were in the mild to slightly moderate ranges.

All subjects were post tested in classroom settings within three to four weeks following the initial assessments. All three questionnaires were given at this time. The results show that the experimental subjects in both groups showed decreases in fear following fire safety training. These decreases were seen on the FFI as well as on the fire item of the FSSC-R scale. Although these decreases were not statistically significant, they are thought to be of clinical significance. While similar reductions were seen in the Attention Control group, on both the FFI and the fire item of the FSSC-R, reductions in each of the three above mentioned groups were substantially greater than that found in the waiting list control group. This is illustrated in a display of the difference scores and group means in the Results section.

It was expected that those children trained in what to do in a fire situation would have less fear at post test. What was not expected, however, was that attention control children (ones who discussed fear incidences and told fire related stories) would also show reductions in fear at a similar level to those taught safety skills. In analyzing the attention control strategy which was engaged in the present study, the explanation for this finding became more obvious.

In this group (Attention control) children participated in three different activities on three

consecutive days. These activities included the telling of fire related incidences of which they were aware on the first day. The second day consisted of the telling of fictional fire related stories by both the experimenter and subjects. Lastly, on day three the experimenter and subjects again told fictional stories and drew pictures to correspond to the stories.

On each day the experimenter began telling the stories which were all relatively positive in nature. Each story involved fire but in all cases the fire was small, successfully extinguished and caused minimal damage. This positivism begun by the experimenter set the pace for the remaining stories by the children to be relatively non harmful in nature. In using this strategy another method of fear reduction may have been inherently engaged which consisted of diminishing the aversiveness or negative qualities of the stimulus situation. Kanfer et al. (1975) utilized this notion in their study whereby they developed self-instructions to specifically accomplish this task. These children learned self-statements such as "the dark is a fun place to be", and "there are many good things in the dark". In the present study the stimulus, fire, was presented in a less negative (almost positive) manner thereby reducing its fearful qualities. For example children were told the story of the wizard of oz which illustrated the tin man heroically extinguishing the flaming

scarecrow. In essence, children in the attention control group were given the message that fires are not so dangerous and that there is no need to be afraid of them.

This finding is especially important in that it suggests that the technique of reducing the aversive qualities of a fearful stimulus tends to aid in decreasing children's fear regarding that stimulus. With this in mind this approach to reducing children's fears may well serve as a beneficial adjunct to other fear reduction strategies.

The third hypothesis is concerned with the issue of generalization. It was expected that the reductions in fear found following training may not be specific to fire related fear but may generalize to other fears as well. It was thought that if children learned to handle one fear that these strategies may be used to cope with other fearful situations. In order to assess children's generalized fear levels, the FSSC-R in its entirety was given at pre, post and follow-up assessments. The FSSC-R as discussed earlier, is an 80 item questionnaire which encompasses a wide range of childhood fears. At pretest group mean scores for this scale ranged from 145.92 to 161.50. These scores are in the average range and are not indicative of clinical levels of fear.

This hypothesis was confirmed in that significant reductions in fear levels were found on the FSSC-R in the

Fire Safety, Fire Safety/Fear Reduction, and in the Attention Control groups. In comparisons done between each of the above groups and the control group, significant differences were found at post test. These differences indicate that all groups undergoing some type of training reported significantly less overall fear than groups receiving no training at all. More specific interpretation of these findings will be discussed under hypothesis four. These findings are impressive and informative in that they illustrate the potential generalizability of the treatment strategies used.

The fourth hypothesis looked at the comparison between the Fire Safety and the Fire Safety/Fear Reduction groups only, in terms of their effectiveness in reducing children's fears. The Fire Safety group consisted of only training fire safety skills as described earlier. The Fire Safety/Fear Reduction group however was taught fire safety skills as well as a cognitive self-instructional fear reduction strategy. This strategy which was based in part on that used by Kanfer et al. (1975) is described in detail in Appendix A.

It was hypothesized that children in the Fire Safety/Fear Reduction group would show greater decreases in fear (particularly fire related fear) than those displayed by the Fire safety group at post test. It was hypothesized that the self-control strategy learned by

this group would provide subjects with a sense of control and competence in a fearful situation. The self-instructions were expected to direct the subjects' thoughts and behavior thereby allowing them to react in a more relaxed, less fearful and rational manner (Meichenbaum & Goodman, 1969; 1971).

This hypothesis was not confirmed. The results indicate that there were no significant differences between the two groups on the Fire item of the FSSC-R or the FSSC-R. However on the FFI a significant difference was seen when post test means were compared. Based on this analysis the Fire Safety group showed significantly less fear than all other groups at post test. Due to a significant difference found among groups at pretest on this measure these data were reanalyzed to look at difference scores across groups from pre-assessment to post assessment. According to these results there were no significant differences among the four groups at post test. These results then may indicate that both the Fire Safety and the Fire Safety/Fear Reduction groups were similarly effective in reducing children's fears.

In comparisons done among all four groups some interesting trends were evident. It was found that the Fire Safety group showed significantly less generalized fear, as indicated by the scores on the FSSC-R, than the Attention control and the control groups. Further,

although non significant, the Fire safety group showed a slightly greater decrease in general fear over the fire safety/fear reduction group as well (indicated by post test means). The reason that this group appears to have been more effective in comparison to the Fire safety/fear reduction group is likely to be due to the absence of imaginal exposure, a factor that will be discussed in the next paragraphs.

On all three fear measures the Fire safety, Fire safety/fear reduction and the Attention control groups reported substantially less fear than the control group. This trend is important in that it suggests that each of the strategies used in these groups are beneficial in reducing children's fears to some extent.

There are several possible explanations as to why the self-instructional fear reduction strategy did not have the effect proposed. The explanation which is most plausible to this author has to do with the imaginal exposure aspect of the strategy. It is thought that this portion of the strategy may have counteracted any facilitative aspects of the strategy (at least immediately). In this strategy children were to pretend that they were in a situation where a high level of fear would be present. The situations varied from "seeing fire in your house" to "hearing crashes in your house". Children were asked to really pretend that they were in

these situations. Further, when these situations were demonstrated by the experimenter a frightful and panicky manner was used (detailed more in Appendix A). This method of presentation was used in order to depict a fearful state gradually becoming relaxed and controlled. It was not the investigator's intention to introduce another variable but rather to enhance the teaching of the present one (cognitive self-instructions)

It is thought that exposing the subjects to the fearful stimuli may have resulted in their becoming slightly more afraid. Subjects in this study were not exposed to the fearful stimuli in a gradual manner as is done in techniques such as systematic desensitization (Wolpe & Lazarus, 1966). In this technique it is deemed important to utilize hierarchies and gradual approximations towards the feared stimulus in order to avoid invoking extreme levels of anxiety (Rimm & Masters, 1979; Morris & Kratochwill, 1983). Since subjects were not subjected to this type of graduation it is likely that present levels of anxiety were exacerbated. If this was the case, the usefulness of any techniques learned in this group may have been defeated by the inclination in fear. Since the Fire safety/fear reduction group was the only one that received cognitive training regarding fear reduction, thus the only group to be subjected to imaginal exposure, one can not draw any firm conclusion regarding

the immediate effectiveness of the fear reduction strategy used here. In order to make definitive conclusions regarding immediate treatment gains using the present fear reduction strategy, another study comparing its various components would have to be conducted. However, based on follow-up results of this study, as well as previous research (Meichenbaum, 1972; Meichenbaum et al., 1969; Meichenbaum et al., 1971), it is believed that the component of teaching children coping self-statements is effective in reducing anxiety and directing behavior.

These results are contrary to those found in the Kanfer et al. (1975) study. There were several important differences between the present study and the Kanfer et al. (1975) study. The latter study used kindergarten students and a different feared stimulus (the dark). Also this study used behavioral measures rather than self report measures of fear. It is possible that in the present study subjects' self report of fear levels may not have been truly indicative of their actual fear. More importantly in the comparison study, subjects too were exposed to the feared stimulus. However in that study all groups were exposed to the fearful stimuli. This was not the case in the present study as only the Fire Safety/fear reduction group experienced exposure which may have in turn confounded the results.

The fifth hypothesis deals basically with the

relationship between children's level of fear and their level of appropriate behavioral responding. This hypothesis which ties in with the second hypothesis assumes that children who know what to do in a fire will have less fire related and also less generalized fear. Therefore children's behavioral performance scores were expected to correlate negatively with their fear scores.

No significant relationship was obtained between fire safety performance and level of fear at pretest. This finding was expected in that all subjects displayed relatively similar levels of fire safety responding and fear prior to training. Following training however, significant differences were found. Children's behavioral performance scores correlated inversely with their levels of fear on the FFI and the FSSC-R. No significant correlation was seen on the fire item of the FSSC-R. This is thought to be due to lack of variability found in this particular measure (3 point scale). The significant findings here support the aforementioned hypothesis, confirming that as children become more knowledgeable of what to do in a fire situation the less fearful they become of that situation.

This finding is an important one in that it supports the notion that competence in or knowledge of a fearful situation serves to diminish one's reported level of fear regarding that situation. This finding has implications

for not only fire related fear but for other childhood fears such as fear of the dark, social phobia, and school phobia. Thus if children are informed and taught the skills to use in a fearful situations it is likely that they will become less afraid of the situation, be it fire, the dark, school etc.

There was no significant relationship between behavioral responding and fear levels at follow-up. This result suggests as does others concerning maintenance issues (discussed in the next paragraphs), that positive effects which were evident at post-test dissipated over time. These results along with others to be discussed suggest that more work is needed to ensure long term effects of treatment gains.

The sixth and seventh hypothesis were concerned with the maintenance of treatment effects over time. The fire safety skills acquired at post test were expected to maintain to some degree over time in the absence of specific programming. These hypotheses were not confirmed. All groups showed significant decrease in behavioral responding from post test to five month follow-up. In fact all groups except for the Fire Safety/Fear Reduction group showed decreases in safe responding yielding levels similiar to those displayed at pretest.

This study is the first in the series of fire safety

studies which has implemented a five month follow up without retraining or prior assessments. Jones and Haney (1984) had some encouraging results in their study with regards to maintenance of behavior. These authors found that acquired behavior declined to a level of fifty percent in behavioral groups and sixty-eight percent in the self-instructions group at an eight month follow-up. However, unlike the present study Jones and Haney conducted assessments immediately following training and again at one month, two months, three months, four months, five months and eight months following training. Also following the fourth month assessment subjects were given a retraining session which was not done in the present study.

It is likely that frequent assessments served as periodic practices which aided in the enhancement of children's retention of learned skills. In the present study, children were not frequently assessed over the five month period. They had no contact with the experimenters nor were they given any information regarding the fire safety project between post test and five month follow-up. Given the absence of these factors, these subjects had a greater opportunity for the lessening of response occurrences.

In the Jones and Haney (1984) study as mentioned before retraining occurred after four months. Subjects

were then tested for correct skills four months subsequent to that. Substantial drops in behavior were found at the final eight month assessment. These drops although substantial, were not as great as those found in the present study. This is likely due to children's expectations of continued frequent assessments as had occurred during earlier stages of the experiment. This expectation may also have also served as a memory enhancer as well as a cue to practice verbally and also behaviorally.

Another explanation of the difference between the studies may be the result of the amount of (assessment free) elapsed time, five months versus four months. Given the fact that a steady decrease in behavior was seen in the Jones and Haney (1984) study it is likely that in another month that behavior would have decreased to levels approximating those in the present study. These results imply that special efforts (programming) must be systematically engaged to provide for the maintenance of treatment gains over time (Jones et al. 1981b).

The last point of interest in regards to maintenance of behavioral skills is concerned with the significant difference found across the groups at follow-up. This section will also encompass the discussion of hypothesis number seven which pertains to the maintenance of the amount of fear reduced. It was found that the Fire

Safety/Fear Reduction group did significantly better than other groups on behavioral performance of fire safety skills at follow-up. Although this group showed no immediate significant differences in behavioral responding or fear levels over other groups, trends towards long term effectiveness were evident. In the Fire Safety, Fire Safety/Fear Reduction and the Attention control groups fear levels increased over time. However, difference scores from post to follow-up for the Fire Safety/Fear Reduction group indicate less of an increase than the other two groups on two of the three fear measures.

As stated earlier, this strategy tended to expose children to imaginal fear situations which in turn may have led to them to becoming more fearful. This was the case immediately following training (at post test) which resulted in the Fire Safety, the Fire Safety/Fear Reduction and the Attention Control group being equally effective in reducing fear. However, it seems that children may have gotten over the initial fearfulness precipitated by the treatment thereby later allowing themselves to utilize the strategies provided. It also appears that using these strategies may have impacted on the children's ability to function proficiently in fearful situations as in the simulated fire settings.

It is thought by this author that although the fear reduction strategy implemented has some debilitating

aspects (imaginal exposure) it also includes aspects which are equally facilitative. These facilitative aspects include the utilization of coping self-statements. This strategy unlike others offered in the study equipped subjects with self-control tools or techniques which could be used after termination of the treatment. It is thought that children used and practiced these statements to some degree during the interim period and also at follow-up. These statements are thought to have calmed and relaxed the child (Meichenbaum, 1971). It is also thought that they served to give the subject a sense of competence in his ability to handle a frightful, panicky situation. Because the self-instructions served to relax and provide a sense of control and competence it is likely that as a result children felt less fearful and better able to remember and perform behavioral steps relative to children in other groups.

Another possible reason as to why this group reported less fear over time and were better able to handle fearful situations may be due to another aspect of the cognitive fear reduction strategy. In this group unlike other groups the linkage between being physically competent (fire safety skills) and being mentally competent (relaxed and less afraid) was drawn for the subjects through the statements. For instance in saying the statements "I should relax and calm down, I can take care of myself

because I know what to do in a fire; I should roll out of bed ..." provides rationale and understanding to the subject as to why he should behave or feel a certain way. This reasoning was not given in other groups. The Fire Safety group subjects were taught physical competence skills but were provided no rationales or coping strategies. This lack of knowledge may be reasoning as to why such positive immediate effects yielded by the Fire Safety and Attention Control groups diminished almost entirely over time. Again because of these results it is believed that the self-instructional fear reduction strategy does indeed have a diminishing effect on children's fears. It is further believed that these results would have been evident at post test had it not been for the immediate confounding effects of the imaginal exposure.

A final result to be discussed here is that of some decrease in fear levels displayed by the control group at follow-up. The control group showed slightly decreased levels of fear from post test to follow-up on the fire item of the FSSC-R, the FFI and the FSSC-R. This group was the only one to show any decrease on the fear measures. These decreases were not significant and are thought to have no clinical or empirical importance. It is hypothesized that these changes are simply due to random error.

The eighth and final hypothesis of the study was concerned with the relationship between children's locus of control and their level of fear. It was hypothesized that there would be a negative relationship between children's locus of control index and the amount of fear in which they reported on the fear measures. In essence as the locus of control score increased to indicate a more internal locus of control children's fear levels would decrease. This hypothesis was not confirmed as there was no consistent pattern of significant correlations. This negative relationship found on the FSSC-R at pretest and on the FSSC-R and the FFI at follow-up supports the notion to an extent. However, these findings were not seen at post test wherein they were expected to be most obvious. Since these findings were inconsistent and not supported by the ANOVAs or by visual analyses of the mean scores, implications were not drawn based on them.

#### Conclusions and Implications

In the following paragraphs the findings of the present study will be summarized, shortcomings elucidated and implications discussed.

A behavioral training package was indeed found to be effective in enhancing children's fire safety skills. This package provided children with skills and the knowledge concerning what to do in a fire. This method of training seemed to be an effective means of reducing

children's fear levels. It is believed that because children possessed the necessary skills and knowledge they were in turn less afraid of the fearful situation.

A major hypothesis of the study which maintained that children who learned a cognitive self-instructional strategy would report significantly less fire related fear than those not receiving this type of training was not confirmed. In fact all groups except the waiting list control group reported similar levels of fear reduction which is suggestive of similar effectiveness among the three strategies used. Reductions in fear were expected in the two experimental groups but not in the attention control group. It is believed that in this group another fear reduction method may have been in operation that was unknown to the investigator at the time. These results in combination suggests that each method used (the teaching of behavioral skills, the teaching of self-control and the diminution of the aversiveness of fearful stimuli) may be similarly effective and thereby equally important in the development of fear reduction strategies.

Lastly, the study illustrates some important findings regarding the generalization of both fear and behavioral responses. It was found that children in the three groups who showed reductions in fire related fear also reported reductions in general fear. Findings suggest that training methods effective in decreasing one type of fear

(fire-related) may be beneficial in decreasing other childhood fears.

With regards to maintenance, it was noted that treatment effects tended to dissipate significantly over time on both the fear and behavioral measures. However, in the group that received the cognitive self-instructions (Fire safety/fear reduction) less of a reduction in behavioral skills were noted. Three subjects in this group made no errors in sequential behavioral responding until the end of the sequence which consisted of not yelling for help or not waving the cloth. Four other subjects made errors at or near the door while the remaining five subjects performed at near zero levels.

This trend towards somewhat greater maintenance may be attributed to the self-control strategies and rationale provided in this group. That is as noted in related studies in this area, children who are exposed to information which conveys the need for various safety skills have maintained their behavioral performance at greater levels than children not exposed to such information (Hillman, Farmer & Jones, 1986; Jones & Haney, 1984).

The present research has several implications for the area of childhood fear reduction. This study represents one of the few controlled investigations designed to examine methods of reducing children's fears. These

findings add to the present research in that it provides some potentially valuable insights into ways of reducing fear and may well serve as a springboard for future research.

This research has outlined several treatment strategies and brings to light the advantages and disadvantages of each. These points are especially made clear in the cognitive self-instructional strategy used in the present study. It alerts investigators to be aware of possible negative effects of imaginal exposure when developing cognitive-behavioral strategies. It also serves to remind experimenters to explore and analyze treatment strategies thoroughly before implementation. This need became obvious when the Attention control strategy was examined upon conclusion of the present study. These factors which composed the major shortcomings of the present study may serve as precautionary measures for future research.

More specifically, this study has implications for the actual reducing of children's fears. It illustrated that three strategies were effective in attaining this goal. These strategies which consisted of the teaching of self-control strategies, the teaching of skills or physical competence and the diminution of the aversiveness of fearful stimuli, all utilized somewhat unique methods and resulted in similar levels of fear reduction. This

suggested that each of these methods may be equally powerful alone, and may be even more powerful if used in combination. These strategies are likely to compliment one another as together they address the cognitive as well as behavioral aspects of the fearful condition. To validate the effectiveness of a combined package one would have to engage a dismantling strategy where the combined and separate impact of each component could be assessed. Further researchers might wish to compare these methods with more popular fear reduction procedures such as systematic desensitization and flooding.

Lastly, this research is consistent with previous research concerning the maintenance of behavior. These findings imply that behavior or treatment effects will indeed decrease over time unless maintenance is provided for or programmed. This research lends some support to the notion that cognitive activity serves to enhance maintenance of behavior. The cognitive self-instructions used in the present study are thought to have relaxed, directed and provided the subject with a sense of self control in a fearful situation. This type of cognitive activity is thought to have allowed the subjects to react less fearfully, more rationally and more appropriately thus leading to greater maintenance. Because the present strategy and others like it have yielded positive long term effects, researchers would fare well to program

cognitive components such as this to ensure maintenance over time.

## REFERENCES

- Angelino, H., Dollins, J. & Mech, E.V. Trends in the "fears and worries" of school children as related to socio-economic status and age. Journal of Genetic Psychology, 1956, 89, 263-267.
- Agras, W.S, Sylvester, D., & Oliveau, D. The epidemiology of common fears and phobias. Comprehensive Psychiatry, 1969, 10, 151-156.
- Bamber, J.H. (1979). The fears of adolescents. New York: Academic Press.
- Bandura, A. (1969). Principles of behavior modification. New York: Holt.
- Bandura, A. & Menlove, F. Factors determining vicarious extinction of avoidance behavior through symbolic modeling. Journal of Personality and Social Psychology, 1968, 8, 99-108.
- Barabasz, A.F. Group desensitization of test anxiety in elementary school. The Journal of Psychology, 1973, 83, 295-301.
- Bellack, A.S., & Hersen, M. (1977). Behavior modification: An introductory textbook. Baltimore: Williams & Wilkins.
- Bem, S.L. Verbal self-control: The establishment of effective self-instruction. Journal of Experimental Psychology, 1967, 74, 485-491.
- Croake, J.W. Fears of children. Human Development,

1969, 12, 239-247.

- Croake, J.W. & Knox, F.H. The changing nature of children's fears. Child Study Journal, 1973, 3, 91-105.
- Freeman, B.J., Roy, R.R. & Hemmick, S. Extinction of a phobia of a physical examination in a seven-year-old mentally retarded boy: A case study. Behavior Research and Therapy, 1976, 14, 63-64.
- Graziano, A.M. & Mooney, K.C. Family self-control instruction for children's night time fear reduction. Journal of Consulting and Clinical Psychology, 1980, 48, 206-213.
- Graziano, A.M., Mooney, K.C., Huber, C., & Ignasiak, D. Self-control instructions for children fear reduction. Journal of Behavior Therapy and Experimental Psychiatry, 1979, 10, 221-227.
- Hagman, E. A study of fears of children of preschool age. Journal of Experimental Education, 1932, 1, 110-130.
- Hillman, H.S., Jones, R.T. & Farmer, L. The acquisition and maintenance of fire emergency skills: Effects of rationale and behavioral practice. Journal of Pediatric Psychology, 1986, 11, 247-258.
- Jersild, A.J. & Holmes, F.B. Children's fears. Child Development Monographs, 1935, 20.
- Jersild, A.J., Goldman, B. & Loftus, J.J. A comparative

study of the worries of children in two school situations. Journal of Experimental Education, 1941, 9, 323-326.

Jones, R.J. & Haney, J.I. A primary preventive approach to the acquisition and maintenance of fire emergency responding: comparison of external and self-instruction strategies. Journal of Community Psychology, 1984, 12, 180-191.

Jones, R.T. & Kazdin, A.E. Teaching children how and when to make emergency telephone calls. Behavior Therapy, 1980, 11, 509-521.

Jones, R.T. Kazdin, A.E. & Haney, J.I. Social validation and training of emergency fire safety skills for potential injury prevention and life saving. Journal of Applied Behavior Analysis, 1981a, 14, 249-260.

Jones, R.T., Kazdin, A.E. & Haney, J.I. A follow-up to training emergency skills. Behavior Therapy, 1981b, 12, 716-722.

Jones, R.T., Van Hasselt, V.B. & Sisson, L.A. Emergency fire-safety skills: a study with blind adolescents. Behavior Modification, 1984, 8, 59-78.

Kanfer, F.H., Karoly, P., & Newman, A. Reduction of children's fears of the dark by confidence related and situational threat-related verbal cues. Journal of Consulting and Clinical Psychology, 1975, 43, 251-258.

- Kazdin, A.E. (1980). Behavior modification in applied settings. Illinois: Dorsey Press.
- Kondas, O. Reduction of examination anxiety and stage fright by group desensitization and relaxation. Behavior Research and Therapy, 1967, 5, 275-281.
- Lapouse, R., & Monk, M.A. Fears and worries in a representative sample of children. American Journal of Orthopsychiatry, 1959, 29, 223-248.
- Luria, A. (1961). The role of speech in the regulation of normal and abnormal behaviors. New York: Liveright.
- MacFarlane, J.W., Allen, L. & Honzik, M.P. A developmental study of the behavior problems of normal children between 21 months and 14 years. Berkely: University of California Press, 1954.
- Marks, I.M. (1969). Fears and phobias. New York: Academic Press.
- Meichenbaum, D.H. Cognitive modification of test anxious college students. Journal of Consulting and Clinical Psychology, 1972, 39, 370-380.
- Meichenbaum, D. (1976). Toward a cognitive theory of self-control. In G.E. Schwartz & D. Shapiro (Eds.) Consciousness and self-regulation: Advances in research. Vol.1. New York: Plenum.
- Meichenbaum, D. (1977). Cognitive-behavior modification: An integrative approach. New York: Plenum.
- Meichenbaum, D.H. & Goodman, J. Reflection-impulsivity

and verbal control of motor behavior. Child Development, 1969, 40, 785-797.

Meichenbaum, D.H. & Goodman, J. Training impulsive children to talk to themselves: a means of developing self-control. Journal of Abnormal Psychology, 1971, 77, 115-126.

Miller, L.C., Barrett, C.L., & Hampe, E. (1974). Phobias of childhood in a prescientific era. In A. Davids (Ed.), Child personality and psychopathology: Current topics. New York: Wiley.

Miller, P.M. The use of visual imagery and muscle relaxation in the counterconditioning of a phobic child: A case study. The Journal of Nervous and Mental Disease, 1972, 154, 457-460.

Monahan, J. & O'Leary, D.K. Effects of self-instruction on rule-breaking behavior. Psychological Reports, 1971, 29, 1059-1066.

Morris, R.J. & Kratochwill, T.R. (1983). Treating children's fears and phobias. New York, Pergamon.

Mowrer, O.H. Two-factor learning theory reconsidered, with special reference to secondary reinforcement and the concept of habit. Psychological Review, 1956, 63, 114-128.

Navaco, R.W. Treatment of chronic pain through cognitive and relaxation controls. Journal of Consulting and Clinical Psychology, 1976, 44, 681.

- Nowicki, S. & Strickland, B.R. A locus of control scale for children. Journal of Consulting and Clinical Psychology, 1973, 40, 148-154.
- O'Leary, D.K. The effects of self-instruction on immoral behavior. Journal of Experimental Child Psychology, 1968, 6, 297-301.
- Ollendick, T.H. Behavioral treatment of anorexia nervosa: A five-year study. Behavior Modification, 1979a, 3, 124-135.
- Ollendick, T.H. Fear reduction techniques with children. Progress in Behavior Modification, 1979b, 8, 127-168.
- Ollendick, T.H. Reliability and validity of the revised fear survey schedule for children (FSSC-R). Behavior Research and Therapy, 1983, 21, 685-691.
- Ollendick, T.H., Matson, J.L. & Helsel, W.J. Fears in children and adolescents: normative data. Behavior Research and Therapy, 1985, 23, 465-467.
- Pratt, K.C. A study of the fears of rural children. The Journal of Genetic Psychology, 1945, 67, 179-194.
- Rachman, S. (1968). Phobias: Their nature and control. Springfield: Thomas.
- Rachman, S., & Costello, C.G. The aetiology and treatment of children's phobias: A review. American Journal of Psychiatry, 1961, 118, 97-105.
- Ritter, B. The group desensitization of children's snake

phobias using vicarious and contact desensitization procedures. Behavior Research and Therapy, 1968, 6, 1-6.

Ross, D., Ross, S., & Evans, T.A. The modification of extreme social withdrawal by modification with guided practice. Journal of Behavior Therapy and Experimental Psychiatry, 1971, 2, 273-279.

Scherer, M.W. & Nakamura, C.Y. A fear survey schedule for children. Behavior Research and Therapy, 1968, 6,

Sheslow, D.V., Bondy, A.S., & Nelson, R.O. A comparison of graduated exposure, verbal coping skills, and their combination in the treatment of children's fear of the dark. Child and Family Behavior Therapy,

1982, 4, 33-45.

173-182.

Skinner, B.F. (1938). The behavior of organisms. New York: Appleton-Century-Craft.

Skinner, B.F. (1953). Science and human behavior. New York: Macmillan.

Tasto, D.L. Systematic desensitization, muscle relaxation and visual imagery in the counterconditioning of a four-year-old phobic child. Behavior Research and Therapy, 1969, 7, 409-411.

Watson, J.B., & Raynor, R. Conditioned emotional

reactions. Journal of Experimental Psychology, 1920, 3, 1-14.

Weinstein, D.J. Imagery and relaxation with a burn patient. Behavior Research and Therapy, 1976, 14, 481.

Whitman, T. & Johnston, M.B. Teaching addition and subtraction with regrouping to educable mentally retarded children: A group self-instructions program. Behavior Therapy, 1983, 14, 127-143.

Williamson, D.A., Jewell, W.R., Sanders, S.H., Haney, J.N. & White, D. The treatment of reluctant speech using contingency management procedures. Journal of Behavior Therapy and Experimental Psychiatry, 1977, 8, 151-156.

Wolpe, J., & Lazarus, A.A. (1966) Behavior therapy techniques. New York: Pergamon Press.

## APPENDICES

AFFENDIX A  
TRAINING SCRIPT FOR FIRE SAFETY  
AND FIRE SAFETY/FEAR REDUCTION GROUPS

## SITUATION I

## DAY 1

## I N T R O D U C T I O N

Each of you have been selected to participate in our special fire safety project. Over the next three days you will be meeting here for about one hour to learn more about fire safety. On the third day you will be tested to see how much you've learned. We will test you again later to see how much you have remembered. In order for you to learn everything you must come all three days. At the end of the project you will get a prize for participating. Since we will be doing a lot of crawling, girls should wear jeans. We have found that other boys and girls like yourself have really enjoyed this project. I think you will too! Any questions?

- 1) Get subjects' names
- 2) Ask "Has anyone ever been in a fire before?"
- 3) Ask "Has anyone ever been trained before?"

Allow a few minutes for the answering of questions.

SITUATION\_1

## NOTHING BLOCKING YOUR PATH

"I am going to show and tell you what to do when there is just a little smoke in your room. When there is a little smoke it might be safe to leave through your bedroom door, down the stairs, and out through the front door of your house. Today we are going to learn steps which will help us to get out of a house safely when there is no fire in our paths. As we practice these steps it is important for us to think about each step before we do it. We also want to talk to ourselves while we are doing the steps. These are the kinds of things that we will say when we talk to ourselves:"

"First, we want to ask ourselves what\_is\_happening and then answer by describing what is going on in our bedroom, so we'll say, There's a little smoke in my bedroom, then we should ask ourselves, What\_is\_it\_that\_I\_need\_to\_do? Then we should say well, first I should roll or slide out of bed and get into a crawl position, I should crawl directly to the bedroom door, and some other steps that we'll learn later. Then when we are finished we should say, I'm done. After we're done we should ask ourselves, now How\_did\_I\_do and then tell ourselves, I\_did\_a\_great\_job.

"Okay, so the four things that we need to remember are: 1) What's happening?, 2) What is it that I need to do?, 3) How did I do? and 4) I did a great job."

I. Now I'm going to show you the steps that will help you get out of a house safely when there is no fire in your path. I'm also going to talk to myself before doing each step like we just did. I want you to watch what I do and listen to what I say very carefully. When I go outside I want you to follow me out, okay? Ready?

Let's pretend: "It's late at night and there is just a little smoke in your room. You are not coughing and your eyes are not burning. You hear the sound of a fire alarm (buzzzzz)

(The trainer demonstrates the steps while saying the verbalizations aloud.)

" Uhm, What is happening? There's a little smoke in my bedroom, now what is it that I need to do?"

- 1) Well first, I should roll or slide out of bed onto the floor.
- 2) Now I should get into a crawl position on all fours.

- 3) Now I crawl directly from my bed over to the bedroom door.
- 4) Now I will feel the door two times:
  - A) First on the bottom with the back of my hand
  - B) Second, I stand up and feel the top of the door with the back of my hand
- 5) "The door is not hot, so I will return to a crawl position.
- 6) Now I will open the door, but there's three things that I need to remember:
  - A) First, I should place one knee on the floor  
Second, I will place one hand on the door (knob)  
Third, I will place one foot on the door
  - B) Then I will turn the doorknob and open the door just a crack.
  - C) Now I will place one hand in front of the crack still bracing the door with my other hand.
- 7) Since there is no hot air, I will open the door more while I am still on my knees.
- 8) Now I crawl outside of the room.
- 9) And I close my bedroom door behind me.
- 10) Now I crawl down my hallway until I get to the stairs. When I get to the stairs I should turn and crawl down backwards.

11) I reach the end of the stairs and now I will go  
outside my house.

I'm done, Now how did I do? I did a great job!

II. Now I want all of you to say out loud the things  
that we are suppose to say to ourselves while I do the  
steps okay? After we say what we are going to pretend  
you'll start by asking yourself what is happening? and  
then describe what is going on in the bedroom. Then you  
will ask, What is it that I need to do?, and then say  
each step aloud. When we're finished going through the  
steps you'll say I'm done. Last you should ask How did  
I do and answer by saying I did a great job! Okay?  
Ready?

Let's pretend: "It's late at night and there is just a  
little smoke in your room. You are not  
coughing and your eyes are not burning.  
You hear the sound of a fire alarm  
(buzzzz)

The experimenter models all steps while the subjects  
verbalize aloud. If the children hesitate they will be  
prompted by the trainer.

III. Now each of you will get a chance to do all of the steps one at a time while I say the sentences out loud. Ready?

Let's pretend: "It's late at night and there is just a little smoke in your room. You are not coughing and your eyes are not burning. You hear the sound of a fire alarm (buzzzz)

The experimenter starts the verbalizations (Uhm, What is happening? There's a little smoke in my bedroom, Now what is it that I need to do? etc.) while each child goes through the steps individually.

The trainer gives the subjects immediate feedback and praise as well as peers. If the child makes an error the trainer will verbalize and model the correct response two times. The child is then instructed to proceed even if he has not performed the step correctly.

IV. This time each of you will go through the steps one at a time and talk to yourself, saying the things that we have been saying okay? Ready?

Let's pretend: "It's late at night and there is just a little smoke in your room. You are not coughing and your eyes are not burning. You hear the sound of a fire alarm (buzzzz)

The subject performs the responses as well as say the verbalizations individually.

The trainer provides feedback and praise after completion of the sequence at which point the subject is allowed to repeat the sequence if an error has been made.

#### Last 25 Minutes of Session - FIRE SAFETY GROUP

This portion of the session consists of the the subjects reciting the steps in which they learned that day. The subjects only say the steps. No behavioral performances are done.

The children are told "Now we are going to recite the steps that we have learned today aloud. We are not going to perform the steps, we will just say them. First I will say the steps aloud.

Then experimenter recites all the steps starting with step 1, "Well first, I should roll or slide out of

bed onto the floor" and ending with step 11, "I reach the end of the stairs and now I will go outside my house."

The children are now required to recite the steps as a group. If the children hesitate they will be prompted by the experimenter.

Lastly, following group recitation subjects say the steps aloud individually.

#### Last 25 Minutes of Session - FIRE SAFETY/FEAR REDUCTION

##### GROUP:

This portion of the session consists the children learning coping self-instructions to reduce their fear of fire.

The children are told, "now we are going to do something a little bit different. We are going to talk about being afraid of fire. A lot of kids feel afraid of fire or worry about getting burned in a fire. We're going to learn some ways to keep us from feeling this way by talking to ourselves the way we did to learn how to get out of a burning house."

"Remember the things we said to ourselves? Again we

are going to ask ourselves what is happening? but this time instead of saying there's a little smoke in my room, we will say I am feeling afraid of fire and worrying that I will get burned. Then we should ask ourselves what is it that I need to do? and we will answer by saying I should relax and calm down, I can take care of myself because I know what to do in a fire. Now how am I doing? I'm doing great, I'm feeling better already.

The trainer repeats the self-instructions for the general fearful situation above.

"Again we are going to ask ourselves what is happening? and answer by saying I am feeling afraid of fire and worrying that I will get burned. Then we should ask ourselves what is it that I need to do? and we will answer by saying I should relax and calm down, I can take care of myself because I know what to do in a fire. Now how am I doing? I'm doing great, I'm feeling better already.

The trainer demonstrates a frightful expression as he answers, I'm feeling afraid of fire. He further demonstrates a gradual relaxing state as he proceeds with the coping instructions. This relaxed state is evidenced by the experimenter's frightful facial expression

becoming more calm and by his speech becoming slower and less pitched.

After the trainer has verbalized the appropriate instructions twice for the general fearful situation above, the children as a group repeat the verbalizations.

"Okay, now all together you all will say out loud what you should say to yourself when you're feeling afraid of fire. Ready?"

If the children hesitate they will be prompted by the trainer.

Now children will be taught similar instructions to use in a specific fire situation. They will use the instructions just learned plus those involving fire escape skills in which they learned in the first half of the session.

"Now we are going to pretend that we are in a specific situation where we might be afraid and we will again talk to ourselves so we won't be afraid anymore."

Let's pretend: We wake up in the middle of the night  
and we hear fire in our house. We hear

the sound of cracking wood outside. We  
wake up feeling really scared."

"The first thing that we want to do is to ask  
ourselves, What is happening?

Answer, I can hear fire in my house.

What is it that I need to do?

I should relax and calm down, I can take care of  
myself because I know what to do in a fire.

I know that I should:

- 1) Roll or slide out of bed onto the floor.
- 2) Get into a crawl position on all fours.
- 3) Crawl directly from my bed over to the bedroom  
door.
- 4) Feel the door two times:
  - A) First on the bottom with the back of my hand
  - B) Second, stand up and feel the top of the door  
with the back of my hand
- 5) "The door is not hot, so I return to a crawl  
position.
- 6) Open the door, but there's three things that I  
need to remember:
  - A) First, place one knee on the floor  
Second, place one hand on the door (knob)  
Third, place one foot on the door
  - B) Then turn the doorknob and open the door just

a crack.

- C) Place one hand in front of the crack still bracing the door with my other hand.
- 7) Since there is no hot air, I open the door more while I am still on my knees.
  - 8) Crawl outside of the room.
  - 9) And close my bedroom door behind me.
  - 10) Crawl down my hallway until I get to the stairs. When I get to the stairs I turn and crawl down backwards.
  - 11) I reach the end of the stairs and go outside my house.

Now how am I doing?

I'm doing great, I'm feeling better already."

After the experimenter's demonstration of the self-instructions for the specific fearful situation above the children repeat the instructions as a group, starting with "What is happening" and ending with "I'm doing great, I'm feeling better already".

"Now altogether tell me what you should say to yourselves if you woke up and heard a fire in your house."

"Let's pretend: We wake up in the middle of the night

and we hear fire in our house. We hear the sound of cracking wood outside. We wake up feeling really scared."

If the children hesitate they will be prompted by the experimenter.

Following group recitation children repeat the verbalizations individually.

"Each of you now will say out loud what you should say to yourself if you woke up and heard a fire in your house.

"Let's pretend: We wake up in the middle of the night and we hear fire in our house. We hear the sound of cracking wood outside. We wake up feeling really scared."

After the last child has completed his verbalizations the children will be sent back to their classrooms.

SITUATION III

DAY 2

SITUATION\_3

## FIRE IN YOUR PATH

Today we are going to do some of the same things that we did yesterday. Many of the steps will be the same but some will be different. This time there will be fire blocking your path so you won't be able to go down the stairs and out of your house. We will learn today what to do in that situation. We are going to do the steps while talking to ourselves just as we did it yesterday only today we will add some new steps okay?

Again, we want to ask ourselves what\_is\_happening and describe what is going on in the bedroom, so we'll say, There's a little smoke in my bedroom, then we should ask ourselves, What\_is\_it\_that\_I\_need\_to\_do? Then we should say well, first I should roll or slide out of bed and get into a crawl position, I should crawl directly to the bedroom door, and some other steps that we'll learn later. Then when we are finished we should say, I'm done. After we're done we should ask ourselves, now How\_did\_I\_do? and then tell ourselves, I\_did\_a\_great\_job.

Again, I want you to watch what I do and listen to what I say very carefully . When I go outside I want you to follow me out, okay, Ready?

Let's pretend: "It's late at night and there is just a little smoke in your room. You are not coughing and your eyes are not burning. You hear the sound of a fire alarm (buzzzz)

(The trainer demonstrates the steps while saying the verbalizations aloud.)

I.

"Uhm, What is happening? There's a little smoke in my bedroom, now what is it that I need to do?"

- 1) Well first, I should roll or slide out of bed onto the floor.
- 2) Now I should get into a crawl position on all fours.
- 3) Now I crawl directly from my bed over to the bedroom door.
- 4) Now I will feel the door two times:
  - A) First on the bottom with the back of my hand
  - B) Second, I stand up and feel the top of the door with the back of my hand
- 5) "The door is not hot, so I will return to a crawl position.
- 6) Now I will open the door, but there's three things that I need to remember:

- A) First, I should place one knee on the floor  
Second, I will place one hand on the door  
(knob)  
Third, I will place one foot on the door
- B) Then I will turn the doorknob and open the  
door just a crack.
- C) Now I will place one hand in front of the  
crack still bracing the door with my other  
hand.
- 7) Since there is no hot air, I will open the door  
more while I am still on my knees.
- 8) Now I crawl outside of the room.
- 9) Now I close my bedroom door behind me.
- 10) Now I crawl down the hall.
- \*\* I SEE FIRE !!!
- 11) Now I crawl back to my bedroom door.
- 12) Now I open the door and crawl back into the room  
and close the door behind me quickly.
- 13) I now crawl over to get my rug.
- 14) Now I crawl back to the door and I cover the  
whole crack of the door with my rug.
- 15) Then I crawl to my chair and get my shirt.
- 16) Now I crawl to the window with my shirt (on all  
fours).
- 17) Now I open my window.
- 18) And I wave my shirt out the window and yell for

help, Help! Help!

I'm done, Now how did I do? I did a great job!

Phase II, III, and IV are the same as for Day 1.

Phase II - "Now I want all of you to say out loud the things that we are suppose to say to ourselves while I do the steps."

The experimenter models all steps while the subjects verbalize. If the children hesitate they will be prompted by the trainer.

Phase III - "Now each of you will get a chance to do all of the steps one at a time while I say the sentences out loud."

The subjects perform the steps individually while the trainer verbalizes out loud.

Phase IV - "This time each of you will go through the steps one at a time, and talk to yourselves saying the things that we have been saying."

The subjects performs the responses as well as say the verbalizations individually.

Last 25 Minutes of Session - FIRE SAFETY GROUP

This portion of the session consists of the subjects reciting the steps in which they learned that day. Subjects only say the steps. No behavioral performances are done.

The children are told "Now we are going to recite the steps that we have learned today aloud. We are not going to perform the steps, we will just say them. First I will say the steps aloud.

Then experimenter recites all the steps starting with step 1, "Well first, I should roll or slide out of bed onto the floor" and ending with step 18), "And I wave my shirt out the window and yell for help, Help! Help!"

The children are now required to recite the steps as steps as a group. If the children hesitate they will be prompted by the experimenter.

Lastly, following group recitation subjects say the steps aloud individually.

Last 25 Minutes of Session - FIRE SAFETY FEAR/REDUCTION

## GROUP:

This portion of the session consists of the children learning coping self-instructions to reduce their fear of fire.

The children are told, "now we are going to do something a little bit different. We are going to talk about being afraid of fire. A lot of kids feel afraid of fire or worry about getting burned in a fire. We're going to learn some ways to keep us from feeling this way by talking to ourselves the way we did to learn how to get out of a burning house."

"Remember the things we said to ourselves? Again we are going to ask ourselves what is happening? but this time instead of saying there's a little smoke in my room, we will say I am feeling afraid of fire and worrying that I will get burned. Then we should ask ourselves what is it that I need to do? and we will answer by saying I should relax and calm down, I can take care of myself because I know what to do in a fire. Now how am I doing? I'm doing great, I'm feeling better already.

The trainer repeats the self-instructions for the general fearful situation above.

"Again we are going to ask ourselves what is happening? and answer by saying I am feeling afraid of fire and worrying that I will get burned. Then we should ask ourselves what is it that I need to do? and we will answer by saying I should relax and calm down, I can take care of myself because I know what to do in a fire. Now how am I doing? I'm doing great, I'm feeling better already.

The trainer demonstrates a frightful expression as he answers, I'm feeling afraid of fire. He further demonstrates a gradual relaxing state as he proceeds with the coping instructions. This relaxed state is evidenced by the experimenter's frightful facial expression becoming more calm and by his speech becoming slower and less pitched.

After the trainer has verbalized the appropriate instructions twice for the general fearful situation above, the children as a group repeat the verbalizations.

"Okay, now all together you all will say out loud what you should say to yourself when you're feeling afraid of fire. Ready?"

If the children hesitate they will be prompted by the trainer.

Now children will be taught similar instructions to use in a specific fire situation. They will use the instructions just learned plus those involving fire escape skills in which they learned in the first half of the session.

"Now we are going to pretend that we are in a specific situation where we might be afraid and we will again talk to ourselves so we won't be afraid anymore."

Let's pretend: We wake up in the middle of the night and hear a crash somewhere in our house, we think the house may be on fire and we are feeling really scared."

The first thing that we want to do is to ask ourselves,

What is happening?

Answer, I hear a crash in my house.

What is it that I need to do?

I should relax and calm down, I can take care of myself because I know what to do in a fire.

I know that I should:

- 1) Roll or slide out of bed onto the floor....
- 18) Wave my shirt out the window and yell for help,  
Help! Help!

Now how am I doing?

I'm doing great, I'm feeling better already."

After the experimenter's demonstration of the self-instructions for the specific fearful situation above the children repeat the instructions as a group, starting with "What is happening" and ending with "I'm doing great, I'm feeling better already".

"Now altogether tell me what you should say to yourselves if you woke up and heard a crash somewhere in your house."

"Let's pretend: We wake up in the middle of the night and we hear a crash somewhere in our house, we think that the house may be on fire and we are feeling really scared."

If the children hesitate they will be prompted by the experimenter.

Following group recitation children repeat the verbalizations individually.

"Each of you now will say out loud what you should say to yourself if you woke up and heard a fire in your house.

"Let's pretend: We wake up in the middle of the night and we hear a crash somewhere in our house, we think that the house may be on fire and we are feeling really scared."

After the last child has completed his verbalizations the children will be sent back to their classrooms.

SITUATION II

DAY 3

SITUATION\_2

## HOT AIR RUSHING IN THE DOOR

Today we are going to do some of the same things that we did yesterday. Many of the steps will be the same but some will be different. This time there will be hot air rushing in the door. We will learn today what to do in this situation. We are going to do the steps while talking to ourselves just as we did it yesterday only today we will add some new steps okay?

Again, we want to ask ourselves what is happening and then describe what is going on in the bedroom, so we'll say, There's a little smoke in my bedroom, then we should ask ourselves, What is it that I need to do? Then we should say well, first I should roll or slide out of bed and get into a crawl position, I should crawl directly to the bedroom door, and some other steps that we will learn later. Then when we are finished we should say, I'm done. After we're done we should ask ourselves, now How did I do and then tell ourselves, I did a great job.

Again, I want you to watch what I do and listen to what I say very carefully. When I go outside I want you to follow me out, okay, Ready?

Let's pretend: "It's late at night and there is just a little smoke in your room. You are not coughing and your eyes are not burning. You hear the sound of a fire alarm (buzzzz)

(The trainer demonstrates the steps while saying the verbalizations aloud.)

I.

" Uhm, What is happening? There's a little smoke in my bedroom, now what is it that I need to do?"

- 1) Well first, I should roll or slide out of bed onto the floor.
- 2) Now I should get into a crawl position on all fours.
- 3) Now I crawl directly from my bed over to the bedroom door.
- 4) Now I will feel the door two times:
  - A) First on the bottom with the back of my hand
  - B) Second, I stand up and feel the top of the door with the back of my hand
- 5) "The door is not hot, so I will return to a crawl position.
- 6) Now I will open the door, but there's three things that I need to remember:

- A) First, I should place one knee on the floor  
Second, I will place one hand on the door  
(knob)  
Third, I will place one foot on the door
- B) Then I will turn the doorknob and open the  
door just a crack.
- C) Now I will place one hand in front of the  
crack still bracing the door with my other  
hand.

\*\* HAIRDRYER is pointed towards door crack

\*\* There is Hot Air Rushing In !!!

- 7) Now I will shut the door quickly.
- 8) I now crawl over and get my rug.
- 9) Now I will crawl back to the door and cover the  
whole crack of the door with my rug.
- 10) Then I crawl to my chair and get my shirt.
- 11) Now I crawl to the window with my shirt (on all  
fours).
- 12) Now I open the window.
- 13) And I wave my shirt out the window and yell for  
help, Help! Help!

I'm done, Now how did I do? I did a great job!

Phase II, III, and IV are the same as for Day 1 and 2.

Phase II - "Now I want all of you to say out loud the things that we are suppose to say to ourselves while I do the steps."

The experimenter models all steps while the subjects verbalize. If the children hesitate they will be prompted by the trainer.

Phase III - "Now each of you will get a chance to do all of the steps one at a time while I say the sentences out loud."

The subjects perform the steps individually while the trainer verbalizes out loud.

Phase IV - "This time each of you will go through the steps one at a time, and talk to yourselves saying the things that we have been saying."

The subjects performs the responses as well as say the verbalizations individually.

#### Last 25 Minutes of Session - FIRE SAFETY GROUP

This portion of the session consists of the subjects reciting the steps in which they learned that day.

Subjects only say the steps. No behaviorial performances are done.

The children are told "Now we are going to recite the steps that we have learned today aloud. We are not going to perform the steps, we will just say them. First I will say the steps aloud.

Then experimenter recites all the steps starting with step 1, "Well first, I should roll or slide out of bed onto the floor" and ending with step 13), "And I wave my shirt out the window and yell for help, Help! Help!"

The children are now required to recite the steps as a group. If the children hesitate they will be prompted by the experimenter.

Lastly, following group recitation subjects say the steps aloud individually.

Last 25 Minutes of Session - FIRE SAFETY/FEAR REDUCTION  
GROUP:

This portion of the session consists the children learning coping self-instructions to reduce their fear of fire.

The children are told, "now we are going to do something a little bit different. We are going to talk about being afraid of fire. A lot of kids feel afraid of

fire or worry about getting burned in a fire. We're going to learn some ways to keep us from feeling this way by talking to ourselves the way we did to learn how to get out of a burning house."

"Remember the things we said to ourselves? Again we are going to ask ourselves what is happening? but this time instead of saying there's a little smoke in my room, we will say I am feeling afraid of fire and worrying that I will get burned. Then we should ask ourselves what is it that I need to do? and we will answer by saying I should relax and calm down, I can take care of myself because I know what to do in a fire. Now how am I doing? I'm doing great, I'm feeling better already.

The trainer repeats the self-instructions for the general fearful situation above.

"Again we are going to ask ourselves what is happening? and answer by saying I am feeling afraid of fire and worrying that I will get burned. Then we should ask ourselves what is it that I need to do? and we will answer by saying I should relax and calm down, I can take care of myself because I know what to do in a fire. Now how am I doing? I'm doing great, I'm feeling better already.

The trainer demonstrates a frightful expression as he answers, I'm feeling afraid of fire. He further demonstrates a gradual relaxing state as he proceeds with the coping instructions. This relaxed state is evidenced by the experimenter's frightful facial expression becoming more calm and by his speech becoming slower and less pitched.

After the trainer has verbalized the appropriate instructions twice for the general fearful situation above, the children as a group repeat the verbalizations.

"Okay, now all together you all will say out loud what you should say to yourself when you're feeling afraid of fire. Ready?"

If the children hesitate they will be prompted by the trainer.

Now children will be taught similar instructions to use in a specific fire situation. They will use the instructions just learned plus those involving fire escape skills in which they learned in the first half of the session.

"Now we are going to pretend that we are in a specific situation where we might be afraid and we will again talk to ourselves so we won't be afraid anymore."

Let's pretend: We wake up in the middle of the night and feel our bedroom becoming hotter, and we think the house may be on fire. We wake up feeling really scared."

"The first thing that we want to do is to ask ourselves, What is happening?

Answer, My bedroom is getting hotter.

What is it that I need to do?

I should relax and calm down, I can take care of myself because I know what to do in a fire.

I know that I should:

- 1) Roll or slide out of bed onto the floor....
- 13) Wave my shirt out the window and yell for help,  
Help! Help!

Now how am I doing?

I'm doing great, I'm feeling better already."

After the experimenter's demonstration of the self-instructions for the specific fearful situation above the children repeat the instructions as a group, starting with "What is happening" and ending with "I'm doing great, I'm feeling better already".

"Now altogether tell me what you should say to yourselves if you woke up and felt your bedroom becoming hotter."

"Let's pretend: We wake up in the middle of the night and we feel our bedroom becoming hotter and we think that the house may be on fire. We wake up feeling really scared."

If the children hesitate they will be prompted by the experimenter.

Following group recitation children repeat the verbalizations individually.

"Each of you now will say out loud what you should say to yourself if you woke up and felt your bedroom becoming hotter."

"Let's pretend: We wake up in the middle of the night and we feel our bedroom becoming hotter and we think that the house may be on

fire. We wake up feeling really  
scared."

After the last child has completed his verbalizations the  
the children are sent back to their classrooms.

APPENDIX B

TRAINING SCRIPT FOR ATTENTION CONTROL GROUPS

In this group subjects will spend 50 minutes with the experimenter talking about fire related incidences and stories involving fires. There will be no fire safety training nor any discussion concerning fire safety skills.

#### DAY 1

The first 15 minutes of the session is an introduction or "get to know you" phase. The experimenter first introduces herself and gives some information about herself (name, school, age, things she likes to do, and what she wants to be when she grows up). Then each of the four children will introduce and give the same type information.

Over the next two to five minutes the experimenter will explain to the children that "we will spend the next few minutes talking about different things concerning fires. Each of us will tell about ourselves or someone we know who has been in a fire".

The next 30 minutes of the session consists of the experimenter and four subjects (approximately six minutes each) talking about fire related incidences.

#### DAY 2

On day 2 the children are told that they will again talk about fires. "Today we are going to make up

stories about people being in a fire. The story can be about anyone and can take place anywhere that you would like. After each story we will talk about it, okay?". Each story should last about seven minutes followed by 2-3 minute discussions (What happened to the characters?, Did the people escape? etc.) The experimenter begins the storytelling with the story of the Wizard of Oz which is outlined below.

#### THE WIZARD OF OZ

- A girl named Dorothy lives with Auntie Em and Uncle Henry in Kansas.
- Elvira Gulch, a nasty neighbor, comes to complain about Toto, Dorothy's dog.
- Dorothy gets upset because she doesn't want anyone to take Toto away so she runs away.
- A tornado begins to stir.
- Dorothy meets up with the professor.
- He tells Dorothy to go home because Auntie Em needed her.
- When Dorothy gets home she is unable to find anyone.
- She goes inside the house and into her bedroom and gets struck on the head by the window pane.
- Then she dreams off to the land of Oz.
- The house gets caught up in the tornado and spins and spins.
- It lands on the wicked witch of the west.

- Dorothy is now in Oz with the munchkins.
- Glenda the good witch comes to save Dorothy from the wicked witch of the East.
- The witch of the East wants the ruby slippers.
- Glenda used her powers to put the slippers on Dorothy's feet.
- Dorothy wants to get back to Kansas.
- She must follow the yellow brick road.
- Along the way she meets the scarecrow (no brain), the tin man (no heart) and the lion (no courage).
- Up overhead flies the witch.
- She comes down and begins to throw balls of fire at the scarecrow.
- The tin man stomps the fire out with his feet.
- They also run into trouble with some flying monkeys.
- They do get to Oz, and everyone gets their wish granted but Dorothy.
- The Wizard who was going to take Dorothy home flies away in the hot air balloon before Dorothy can get in.
- Glenda comes back and tells Dorothy to close her eyes, and click her heels three times, and say "There's no place like home, There's no place like home".
- Dorothy at this moment wakes from her dream.

## DAY 3

On day 3 the subjects are told that they will again talk about fires. "Today we are also going to draw a picture to go along with the story we make up. First we will draw the picture and then tell everyone our stories. After we tell the stories everyone will talk about them, okay?"

The first 10 minutes is allotted for the drawing of pictures. Brief (5-8 minutes) individual story presentations and discussions follow. The experimenter will begin the storytelling with the story outlined below.

- The story begins with a family of four.
- A mommy, a daddy, a big brother, and a baby sister.
- This is their house.
- One evening Mother is beginning to prepare dinner for the family.
- Dad comes home early and as a surprise announces, "We are all going to McDonald's for dinner."
- "Yeah!" They are all excited. Big brother wants a chocolate shake and the baby sister wants some french fries.
- They all hurry to put on their coats and hats.
- In all the excitement, Mother has forgotten to turn the stove off.

- The pot on the stove begins to boil over. A fire arises.
- The house is empty except for the house cat. This is the cat.
- The cat could not breathe because of the smoke, so it climbed out of an open bedroom window.
- The cat climbed out of the window onto the limb of a tree.
- There it waited for the firemen to come and get it down.
- When the firemen came they rescued the cat and put out the fire.
- The fire was small and did little damage.
- When the family came home they were glad to see that the house and cat were okay.

APPENDIX C  
BEHAVIORAL CHECKLIST  
STEPS FOR SAFE EXITING IN A FIRE

### Situation 1: Nothing Blocking Exit

The subject should not begin performing the steps until after the alarm (buzzer) has sounded.

Appropriate Response	Sequence	Occurrence
1. Rolls or slides out of bed and onto floor. (Does not sit up in bed for more than five seconds)	_____	_____
2. Gets in crawl position after getting out of bed (before walks more than one step). (The subject may sit down on the floor before actually getting in a crawl position with hands and knees flat on the floor).	_____	_____
3. Crawls directly from bed to door (using hands and knees).	_____	_____
4. Lifts one hand, places it on bottom of door (has one knee on floor). Stands up and places hand on upper part of door. <u>Note</u> : subject must use back of hand when feeling door.	_____	_____
5. Returns to crawl position (or squat).	_____	_____
6. Opens door one to two inches (not more than three inches past tape, slowly), keeping one knee on the floor and bracing door with one foot and one hand at all times. Places a hand in front of the crack, still bracing door.	_____	_____
7. Opens door further than one to two inches (from crawl position).	_____	_____
8. Crawls outside bedroom door.	_____	_____
9. Closes door.	_____	_____
10. Crawl to the stairs and go down backwards.	_____	_____
11. Crawl to the outside door and go outside.	_____	_____

### Situation 2: Hot Air Rushing In While Checking

The subject should not begin performing the steps until after the alarm (buzzer) has sounded.

Appropriate Response	Sequence	Occurrence
1. Rolls or slides out of bed and onto floor. (Does not sit up in bed for more than five seconds)	_____	_____
2. Gets in crawl position after getting out of bed (before walks more than one step). (The subject may sit down on the floor before actually getting in a crawl position with hands and knees flat on the floor).	_____	_____
3. Crawls directly from bed to door (using hands and knees).	_____	_____
4. Lifts one hand, places it on bottom of door (has one knee on floor). Stands up and places hand on upper part of door. <u>Note:</u> subject must use back of hand when feeling door.	_____	_____
5. Returns to crawl position (or squat).	_____	_____
6. Opens door one to two inches (not more than three inches past tape, slowly), keeping one knee on the floor and bracing door with one foot and one hand at all times. Places a hand in front of the crack, still bracing door. <u>Cue:</u> <u>Hot air rushes in.</u>	_____	_____
7. Closes door immediately (in crouch position).	_____	_____
8. Crawls and gets rug (or cloth).	_____	_____
9. Crawls to door and pushes rug (or cloth) in front of entire door.	_____	_____
10. Crawls to article of clothing or bedding.	_____	_____
11. Crawls to window (with article of clothing or bedding).	_____	_____
12. Opens window from either a kneeling or a standing position.	_____	_____
13. Yells and signals for help (waves article of clothing or bedding out window).	_____	_____

### Situation 3: Fire Blocking Path

The subject should not begin performing the steps until after the alarm (buzzer) has sounded.

Appropriate Response	Sequence	Occurrence
1. Rolls or slides out of bed and onto floor. (Does not sit up in bed for more than five seconds)	_____	_____
2. Gets in crawl position after getting out of bed (before walks more than one step). (The subject may sit down on the floor before actually getting in a crawl position with hands and knees flat on the floor).	_____	_____
3. Crawls directly from bed to door (using hands and knees).	_____	_____
4. Lifts one hand, places it on bottom of door (has one knee on floor). Stands up and places hand on upper part of door. <u>Note:</u> subject must use back of hand when feeling door.	_____	_____
5. Returns to crawl position (or squat).	_____	_____
6. Opens door one to two inches (not more than three inches past tape, slowly), keeping one knee on the floor and bracing door with one foot and one hand at all times. Places a hand in front of the crack, still bracing door. <u>Cue:</u> <u>Hot air rushes in.</u>	_____	_____
7. Opens door further than one to two inches (from crawl position).	_____	_____
8. Crawls outside bedroom door.	_____	_____
9. Closes door.	_____	_____
10. Crawls until sees fire. <u>Cue:</u> <u>Picture of fire.</u>	_____	_____
11. Crawls back to bedroom door.	_____	_____
12. Crawls back into room; closes door.	_____	_____
13. Crawls and gets rug (or cloth).	_____	_____

Appropriate Response	Sequence	Occurrence
14. Crawls to door and pushes rug (or cloth) in front of entire door.	_____	_____
15. Crawls to article of clothing or bedding.	_____	_____
16. Crawls to window (with article of clothing or bedding).	_____	_____
17. Opens window from either a kneeling or a standing position.	_____	_____
18. Yells and signals for help (waves article of clothing or bedding out window).	_____	_____

APPENDIX D

QUESTIONNAIRES

FEAR SURVEY SCHEDULE FOR CHILDREN-REVISED

FIRE FEAR INVENTORY

N-S LOCUS OF CONTROL

SELF-RATING QUESTIONNAIRE (ESSC-R)

Thomas H. Ollendick

NAME: \_\_\_\_\_ AGE: \_\_\_\_\_ DATE: \_\_\_\_\_

**DIRECTIONS:** A number of statements which boys and girls use to describe the fears they have are given below. Read each fear carefully and put an X in the box in front of the words that describe your fear. There are no right or wrong answers. Remember, find the words which best describe how much fear you have.

1. Giving an oral report.....  None  Some  A lot
2. Riding in the car or bus.....  None  Some  A lot
3. Getting punished by mother.....  None  Some  A lot
4. Lizards.....  None  Some  A lot
5. Looking foolish.....  None  Some  A lot
6. Ghosts or spooky things.....  None  Some  A lot
7. Sharp objects.....  None  Some  A lot
8. Having to go to the hospital.....  None  Some  A lot
9. Death or dead people.....  None  Some  A lot
10. Getting lost in a strange place.....  None  Some  A lot
11. Snakes.....  None  Some  A lot
12. Talking on the telephone.....  None  Some  A lot
13. Roller Coaster or carnival rides.....  None  Some  A lot
14. Getting sick at school.....  None  Some  A lot
15. Being sent to the principal.....  None  Some  A lot
16. Riding on the train.....  None  Some  A lot
17. Being left at home with a sitter.....  None  Some  A lot
18. Bears or wolves.....  None  Some  A lot
19. Meeting with someone for the first time.  None  Some  A lot

20. Bombing attacks--being invaded.....  None  Some  A lot
21. Getting a shot from the nurse or doctor.  None  Some  A lot
22. Going to the dentist.....  None  Some  A lot
23. High places like on mountains.....  None  Some  A lot
24. Being teased.....  None  Some  A lot
25. Spiders.....  None  Some  A lot
26. A burglar breaking into our house.....  None  Some  A lot
27. Flying in a plane.....  None  Some  A lot
28. Being called on by the teacher.....  None  Some  A lot
29. Getting poor grades.....  None  Some  A lot
30. Bats or birds.....  None  Some  A lot
31. My parents criticizing me.....  None  Some  A lot
32. Guns.....  None  Some  A lot
33. Being in a fight.....  None  Some  A lot
34. Fire--getting burned.....  None  Some  A lot
35. Getting a cut or injury.....  None  Some  A lot
36. Being in a big crowd.....  None  Some  A lot
37. Thunderstorms.....  None  Some  A lot
38. Having to eat some food I don't like....  None  Some  A lot
39. Cats.....  None  Some  A lot
40. Failing a test.....  None  Some  A lot
41. Being hit by a car or truck.....  None  Some  A lot
42. Having to go to school.....  None  Some  A lot
43. Playing rough games during recess.....  None  Some  A lot
44. Having my parents argue.....  None  Some  A lot

45. Dark rooms or closets.....  None  Some  A lot
46. Having to put on a recital.....  None  Some  A lot
47. Ants or beetles.....  None  Some  A lot
48. Being criticized by others.....  None  Some  A lot
49. Strange looking people.....  None  Some  A lot
50. The sight of blood.....  None  Some  A lot
51. Going to the doctor.....  None  Some  A lot
52. Strange or mean looking dogs.....  None  Some  A lot
53. Cemeteries.....  None  Some  A lot
54. Getting a report card.....  None  Some  A lot
55. Getting a haircut.....  None  Some  A lot
56. Deep water or the ocean.....  None  Some  A lot
57. Nightmares.....  None  Some  A lot
58. Falling from high places.....  None  Some  A lot
59. Getting a shock from electricity.....  None  Some  A lot
60. Going to bed in the dark.....  None  Some  A lot
61. Getting car sick.....  None  Some  A lot
62. Being alone.....  None  Some  A lot
63. Having to wear clothes different from  
others.....  None  Some  A lot
64. Getting punished by my father.....  None  Some  A lot
65. Having to stay after school.....  None  Some  A lot
66. Making mistakes.....  None  Some  A lot
67. Mystery movie.....  None  Some  A lot
68. Loud sirens.....  None  Some  A lot
69. Doing something new.....  None  Some  A lot

70. Germs or getting a serious illness.....  None  Some  A lot
71. Closed places.....  None  Some  A lot
72. Earthquakes.....  None  Some  A lot
73. Russia.....  None  Some  A lot
74. Elevators.....  None  Some  A lot
75. Dark places.....  None  Some  A lot
76. Not being able to breathe.....  None  Some  A lot
77. Getting a bee sting.....  None  Some  A lot
78. Worms or snails.....  None  Some  A lot
79. Rats or mice.....  None  Some  A lot
80. Taking a test.....  None  Some  A lot

FEAR INVENTORY FOR FIRE SAFETY

DIRECTIONS:

Very often, people are afraid of certain things or situations. It is not odd or strange for people to have a fear of certain things. Perhaps you know of a few things and experiences that may cause you to feel afraid or to have unpleasant feelings. Circle the word that best describes how much you are disturbed nowadays by each of the following items.

\* \* \* \* \*

- |   |      |      |       |
|---|------|------|-------|
| 1. Smelling smoke in your home. . . . .   | None | Some | A lot |
| 2. Seeing smoke in your home. . . . .   | None | Some | A lot |
| 3. Hearing a burning fire outside your bedroom. . . . .                         | None | Some | A lot |
| 4. Seeing a burning fire in your home . . . . .                                 | None | Some | A lot |
| 5. Smelling a burning fire in your home . . . . .                               | None | Some | A lot |
| 6. Being alone in your house. . . . .   | None | Some | A lot |
| 7. Being alone in your bedroom. . . . .   | None | Some | A lot |
| 8. Losing control in a fire emergency . . . . .                                 | None | Some | A lot |
| 9. Hearing people scream in your house during a fire emergency. . . . .         | None | Some | A lot |
| 10. Hearing a fire alarm in your house during a fire emergency. . . . .         | None | Some | A lot |
| 11. Hearing people scream outside your window during a fire emergency . . . . . | None | Some | A lot |
| 12. Hearing the siren of a firetruck . . . . .                                  | None | Some | A lot |
| 13. Seeing a firetruck . . . . .  | None | Some | A lot |
| 14. Seeing a fireman . . . . .  | None | Some | A lot |
| 15. Seeing the flashing light of a firetruck . . . . .                          | None | Some | A lot |
| 16. Hearing a burning fire inside your room. . . . .                            | None | Some | A lot |
| 17. Hearing fire and police radios outside your bedroom window . . . . .        | None | Some | A lot |
| 18. Seeing a fireman climb up a ladder to your bedroom window . . . . .         | None | Some | A lot |
| 19. Hearing windows being broken . . . . .                                      | None | Some | A lot |
| 20. Seeing windows being broken. . . . .  | None | Some | A lot |

19.	Seeing a policeman. . . . .	None	Some	A lot
20.	Hearing the siren of a police car . . . . .	None	Some	A lot
21.	Seeing a police car . . . . .	None	Some	A lot
24.	Seeing the hose from a firetruck. . . . .	None	Some	A lot
25.	Hearing water coming from the hose of a firetruck . . . . .	None	Some	A lot
26.	Looking out your bedroom window in a fire emergency . . . . .	None	Some	A lot
27.	Feeling bedroom become hotter and hotter during a fire. . . . .	None	Some	A lot
28.	Hearing an explosion inside your house. . . . .	None	Some	A lot
29.	Hearing an explosion outside your bedroom window. . . . .	None	Some	A lot
30.	Hearing an ambulance. . . . .	None	Some	A lot
31.	Seeing an ambulance . . . . .	None	Some	A lot
32.	Seeing an ambulance worker. . . . .	None	Some	A lot
33.	Seeing someone be carried from your house on an ambulance stretcher . . . . .	None	Some	A lot

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