Self-Talk and Exposure in the Reduction of Avoidance in Aquaphobic Children.

Johanna Wolfson

Louisiana State University and Agricultural & Mechanical College

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SELF-TALK AND EXPOSURE IN THE REDUCTION OF AVOIDANCE IN AQUAPHOBIC CHILDREN

The Louisiana State University and Agricultural and Mechanical Col. PH.D. 1982

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Self-talk and Exposure in the Reduction of Avoidance in Aquaphobic Children

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Clinical Psychology by

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>i</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vi</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>vii</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>REVIEW OF THE LITERATURE</td>
<td>3</td>
</tr>
<tr>
<td>Definition and Classification of Fears and Phobias</td>
<td>3</td>
</tr>
<tr>
<td>Normative Study of Childhood Fears</td>
<td>6</td>
</tr>
<tr>
<td>Age</td>
<td>7</td>
</tr>
<tr>
<td>Sex</td>
<td>10</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>10</td>
</tr>
<tr>
<td>Psychiatric problems</td>
<td>11</td>
</tr>
<tr>
<td>Definitions: Behavior Therapy, Cognitive Therapy, and</td>
<td>14</td>
</tr>
<tr>
<td>Cognitive-behavior Therapy</td>
<td></td>
</tr>
<tr>
<td>Learning Models and Behavioral Interventions</td>
<td>16</td>
</tr>
<tr>
<td>Classical conditioning and systematic desensitization</td>
<td>17</td>
</tr>
<tr>
<td>Departures from classical conditioning</td>
<td>23</td>
</tr>
<tr>
<td>Social learning theory and modeling</td>
<td>26</td>
</tr>
<tr>
<td>Social learning theory and cognitive mediation</td>
<td>30</td>
</tr>
<tr>
<td>Cognitive-behavioral Intervention and Clinical Problems</td>
<td>34</td>
</tr>
<tr>
<td>Self-control models for children</td>
<td>35</td>
</tr>
<tr>
<td>Cognitive-behavioral interventions for children</td>
<td>40</td>
</tr>
<tr>
<td>Summary and Conclusions</td>
<td>47</td>
</tr>
<tr>
<td>Purpose of the Present Study</td>
<td>49</td>
</tr>
<tr>
<td>METHOD</td>
<td>52</td>
</tr>
<tr>
<td>Subjects</td>
<td>52</td>
</tr>
<tr>
<td>Setting</td>
<td>53</td>
</tr>
<tr>
<td>Staff</td>
<td>55</td>
</tr>
<tr>
<td>Procedure</td>
<td>57</td>
</tr>
<tr>
<td>Pretreatment Measures: Children</td>
<td>59</td>
</tr>
<tr>
<td>Behavior Rating Scale</td>
<td>60</td>
</tr>
<tr>
<td>Louisville Fear Survey for Children</td>
<td>61</td>
</tr>
<tr>
<td>Interest, Motivation and Efficacy Questionnaire</td>
<td>62</td>
</tr>
<tr>
<td>Swim Story</td>
<td>63</td>
</tr>
<tr>
<td>Desirable-Undesirable Locus of Control Questionnaire</td>
<td>64</td>
</tr>
<tr>
<td>Pretreatment Measures: Mothers</td>
<td>65</td>
</tr>
<tr>
<td>Treatment Conditions</td>
<td>66</td>
</tr>
<tr>
<td>Self-talk</td>
<td>67</td>
</tr>
<tr>
<td>Self-talk plus Exposure</td>
<td>68</td>
</tr>
<tr>
<td>Attention Control</td>
<td>68</td>
</tr>
<tr>
<td>Attention Control plus Exposure</td>
<td>68</td>
</tr>
<tr>
<td>Manipulation Checks</td>
<td>69</td>
</tr>
<tr>
<td>Direct questions</td>
<td>69</td>
</tr>
<tr>
<td>Observation of random lip movements</td>
<td>70</td>
</tr>
<tr>
<td>Midtreatment Behavioral Measure</td>
<td>70</td>
</tr>
<tr>
<td><strong>Posttreatment Measures</strong></td>
<td>PAGE</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Swim Skills Test</td>
<td>71</td>
</tr>
<tr>
<td>Instructor Rating Scale</td>
<td>71</td>
</tr>
<tr>
<td><strong>Follow-up Measures</strong></td>
<td>72</td>
</tr>
<tr>
<td><strong>RESULTS</strong></td>
<td>73</td>
</tr>
<tr>
<td><strong>Subject Characteristics</strong></td>
<td>73</td>
</tr>
<tr>
<td>YMCA and school district comparisons</td>
<td>73</td>
</tr>
<tr>
<td>Comparison with normal and phobic samples</td>
<td>74</td>
</tr>
<tr>
<td><strong>Treatment Effects</strong></td>
<td>76</td>
</tr>
<tr>
<td>Behavior Rating Scale</td>
<td>76</td>
</tr>
<tr>
<td>Swim proficiency and swim instructor ratings</td>
<td>83</td>
</tr>
<tr>
<td>Fear inventories</td>
<td>85</td>
</tr>
<tr>
<td>Swim stories</td>
<td>87</td>
</tr>
<tr>
<td><strong>Non-treatment Predictors of Reduction of Avoidance</strong> and Swim Proficiency</td>
<td>88</td>
</tr>
<tr>
<td><strong>Manipulation Checks</strong></td>
<td>90</td>
</tr>
<tr>
<td>Spontaneous verbalizations</td>
<td>90</td>
</tr>
<tr>
<td>Lip movements</td>
<td>90</td>
</tr>
<tr>
<td><strong>DISCUSSION</strong></td>
<td>90</td>
</tr>
<tr>
<td><strong>REFERENCES</strong></td>
<td>106</td>
</tr>
<tr>
<td><strong>APPENDICES</strong></td>
<td>118</td>
</tr>
<tr>
<td>A. Clinical Manual</td>
<td>119</td>
</tr>
<tr>
<td>B. Behavior Rating Scale</td>
<td>136</td>
</tr>
<tr>
<td>C. Louisville Fear Survey for Children</td>
<td>138</td>
</tr>
<tr>
<td>D. Interest, Motivation and Efficacy Questionnaire</td>
<td>142</td>
</tr>
<tr>
<td>E. Swim Story</td>
<td>144</td>
</tr>
<tr>
<td>F. Desirable-Undesirable Events Locus of Control Questionnaire</td>
<td>148</td>
</tr>
<tr>
<td>G. Institutional Review Board Consent Form</td>
<td>151</td>
</tr>
<tr>
<td>H. Parent Permission</td>
<td>155</td>
</tr>
<tr>
<td>I. Instructor Rating Scale</td>
<td>158</td>
</tr>
<tr>
<td>J. &quot;My Special Words&quot;</td>
<td>160</td>
</tr>
<tr>
<td>K. Louisville Behavior Checklist: Fear and Sensitivity Scales</td>
<td>173</td>
</tr>
<tr>
<td>L. Red Cross Progressive Beginner Swim Skills</td>
<td>176</td>
</tr>
</tbody>
</table>

**VITA** 178
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Means and Standard Deviations of Subject Characteristics by Treatment Groups.</td>
<td>54</td>
</tr>
<tr>
<td>2.</td>
<td>Parameters for Fear and Sensitivity for Water-fearful as Compared to Phobic and Normative Populations.</td>
<td>75</td>
</tr>
<tr>
<td>3.</td>
<td>Sources of Variance for Behavior Rating Scale.</td>
<td>78</td>
</tr>
<tr>
<td>4.</td>
<td>Means and Standard Deviations for Behavior Rating Scale at Pre-, Mid- and Posttreatment and Follow-up by Self-talk and Exposure Groups.</td>
<td>79</td>
</tr>
<tr>
<td>5.</td>
<td>Means and Standard Deviations for Number of Swim Skills and Five Items from Instructor Rating Scale (IRS) by Self-talk and Exposure.</td>
<td>84</td>
</tr>
<tr>
<td>6.</td>
<td>Means and Standard Deviations for Eight Measures from the Louisville Fear Survey over Trials.</td>
<td>86</td>
</tr>
<tr>
<td>7.</td>
<td>Predictors of Number of Swim Skills in Stepwise Multiple Regression Analysis.</td>
<td>91</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

1. Behavior Rating Scale Means for Four Treatment Groups and No Treatment Control Across Trials.  PAGE 82
ABSTRACT

Efficacy of verbal self-regulation and in vivo exposure, as compared to placebo treatments, was tested in reduction of water avoidance in aguaphobic children. Forty-seven aguaphobic subjects were assigned to one of five conditions: 1) Self-talk with imaginal exposure (ST); 2) Self-talk with in vivo exposure (ST/E); 3) Attention Control with imaginal exposure (AC); 4) Attention Control with in vivo exposure (AC/E); 5) No Treatment Control (NTC). Children in the ST/E and AC/E groups demonstrated the greatest gains in reduction of avoidance, while those in the ST and ST/E groups showed greater gains in swim proficiency. As compared to the NTC, all treatment groups improved significantly in water approach behavior. Supplementary findings revealed low internal locus of control and a greater number of verbalizations of fear and avoidance to predict reduced improvement in reduction of avoidance. No significant predictors of swim proficiency were found. Self-rated motivation and efficacy were not predictive of improvement. Descriptive data based on parental report revealed males to be more fearful and sensitive than a normative sample, but less so than a phobic sample. Females were described as more fearful and sensitive than normals, but not less than phobics. It was concluded that self-talk and in vivo
exposure can be of value when used as an adjunct to swim instructions and that measures of locus of control and subjective story responses can be effectively used as a screening tool to predict response to swim instruction.
INTRODUCTION

The past decade has seen an increasing formulation of learning in terms of cognitive processes, a trend which has been paralleled by developments in therapeutic strategies, particularly cognitive-behavioral treatments. Cognitive-behavioral interventions get their impetus from theory as well as from the empirical observation that cognitive aspects boost the potency of behavioral treatments.

Cognitive-behavioral strategies have been applied to a variety of children's problems. Variants of cognitive-behavioral intervention such as modeling have been investigated in the reduction of inhibited and fearful behavior, while self-instruction has been utilized with impulsive and aggressive children. Further variants such as problem solving and self-control have also been employed as general coping techniques and for reducing high probability behavior.

Given that fear, especially phobia, can be conceptualized as having important learned as well as cognitive aspects, it is somewhat surprising that, with exception of modeling, little research has been carried out employing cognitive-behavioral reduction of
excessive fear in children. The present paper will review definitions and classifications of childhood fears and phobias, normative studies of child fears, etiological theories and current treatments for phobias of childhood before proposing a controlled investigation of the effects of a self-instruction procedure with water fearful children.

The National Safety Council (1980 Edition) states that one of every six child fatalities between the ages of 5 and 14 is due to drowning, placing this among the leading causes of accidental death in children. Because drowning and near-drowning accidents have caused public concern, there has been growing emphasis in recent years on programs which "drown-proof" children by teaching them basic water survival skills. Children who fear water are unable to learn these skills and are consequently at higher risk for water accidents than children who are not afraid. Hence, there is some justification for examining more effective ways to help children overcome fear of water sufficiently to learn basic life-saving skills.
Definition and Classification of Fears and Phobias

Before reviewing the classification and normative studies of childhood fear, it is necessary to define the terms "fear" and "phobia." It has generally been agreed that fear is a normal reaction to genuine threat which involves three response systems: overt behavior, covert feelings and thoughts, and physiological activity (Graziano, de Giovanni & Garcia, 1979; Marks, 1969; Miller, Barrett & Hampe, 1974). In phobia, one or more of these three elements is persistent, excessive in either intensity, duration and frequency, and maladaptive. Because it is difficult to observe and measure the thoughts and physiological reactions in children, the most frequent component measured is overt behavior, typically avoidance.

Fear, or avoidance, is commonly viewed as a normal response to threatening stimuli, while phobia is considered to be an unreasonable response to benign or ill-defined stimuli. In actuality, the two terms overlap considerably. Ollendick (1979a) combines Marks' (1969) and Miller et al.'s (1974) definition of childhood phobia into the following expanded description: "A
phobia is a special form of fear which is 1) out of proportion to demands of the situation, 2) cannot be explained or reasoned away, 3) is beyond voluntary control, 4) leads to avoidance of the feared situation, 5) persists over an extended period of time, 6) is unadaptive, and 7) is not age or stage specific." This definition helps to distinguish phobias or excessive fears from the more common childhood fears, which are milder and more transient.

It is noteworthy that the above definitions focus on appropriateness and duration to qualify phobic behavior while neglecting intensity. To date, very little information has been obtained about the relative intensity of fears, especially across studies, so this dimension remains unquantified.

Many children experience intense fears in the process of maturing. Most children overcome their fear within two years (Hampe, Noble, Miller & Barrett, 1973), and many overcome them within a matter of weeks (Jersild & Holmes, 1935). If a child's intense fear has a longer duration, it is likely to be labeled as a phobia and brought to a clinician's attention. School avoidance, because it interferes with the child's or family's functioning, is likely to be over-represented in clinical populations, while fears such as animal fears or fear of
water, are apt to be under-represented, though they may be of equal intensity and duration. Water phobia in this context would be defined as avoidance of swimming beyond age-appropriate expectations.

Phobias have traditionally been classified according to the feared stimulus. The possible number of separate phobias described by the feared object or situation is virtually endless. One source lists 107 separate phobias (Terhune, 1949) while another lists over 200 different types of phobic reactions (Redlich & Freedman, 1966). Efforts have been made to cluster intense fears with factor analytic methods. Scherer and Nakamura (1968) isolated eight factors for children aged 9-12, which Miller, Barrett and Hampe (1972) noted could be reduced to three factors, as isolated in their study:

Physical injury: War, illness, dying, airplanes.
Natural events: Storms, dark, enclosure, animals, fire, scary thoughts and monsters.
Psychic stress: School, separation, medical procedures.

Miller et al. (1972) concluded that two main phobic dimensions emerge early and carry throughout life: fear of physical injury and psychic stress, which includes social fears as well as fears of specific types of physical
discomfort or harm. Fear of natural events is clearly associated with childhood and disappears with age. Bandura and Menlove (1968) found a factor clustering similar to that of Miller et al. (1972). Marks and Gelder (1966) note that animal fears tend to emerge earlier, are more rare, and are more isolated from other symptoms than are social and situational fears. Using the above classifications, fear of water may be hypothesized to be associated with fears of physical injury or psychic stress, so that this fear may be part of a phobic dimension that emerges relatively early and has the potential to continue throughout the lifespan.

Normative Study of Childhood Fears

Information concerning the type, number and duration of fears in children as related to such important variables as sex, age, socioeconomic status and psychiatric syndromes would be extremely useful in guiding judgment about the significance of a specific fear such as fear of water. Though more than 20 normative studies of childhood fears have been carried out in the last 60 years (Graziano et al., 1979), there are enough differences to make comparisons across studies difficult: Ages of children sampled vary; some investigators relied on parental report, while others directly interviewed children;
ratings and lists varied; and random sampling was infrequent. However, it is possible to derive from these studies some consistencies concerning childhood fears.

**Age.** The most consistent variable relating to fears in children is age. Younger children tend to fear monsters and ghosts, which have a rather amorphous, imaginary quality. By middle childhood, children report fears of physical harm, and begin to develop well-elaborated, specific situational fears, such as fear of storms, darkness, animals, or water (Bauer, 1977). Bauer notes that the fears of middle childhood reflect their growing cognitive development: The child is able to use an elaborate set of verbal symbols with which to label his environment and to identify fears, so that his fears are more differentiated than those of the younger child. Bauer's sample of kindergarten children tended to identify the appearance of something as fearful, while second and sixth graders identified the object or situation's function as causing fear. Bauer's developmental stages would suggest that children in middle childhood may express a fear of water as they become aware of its potential to harm them physically.

It has been found that less than one percent of the population between the ages of seven and twelve
experiences excessive, unrealistic fear (Miller et al., 1974). An unknown percentage of these rather rare fears have the potential to persist until well into adulthood. Retrospective studies of adults with phobias have found that the onset of animal phobias commonly occurs during early childhood. Situational fears tended to begin in later childhood, and social fears had an onset in late childhood and adolescence (Marks & Gelder, 1966). Usually the types cited above decline with age (Angelino, Dollins & Mech, 1956; Bauer, 1977; Mauer, 1965), as does the number of fears and the percentage of children who report them (MacFarlane, Allen & Honzik, 1954; Scherer & Nakamura, 1968). An early study (Jersild & Holmes, 1935), however, found most childhood fears to be highly transient, lasting only weeks or months.

The relationship among age, transience of fears and intervention has been highlighted by a number of treatment studies. Hampe et al. (1973), for example, found that after two years of treatment with either systematic desensitization or psychotherapy the factor most predictive of treatment outcome was age, with younger subjects tending to lose their fear sooner than older ones, regardless of treatment. Their results showed treatment to hasten the process of fear extinction, which occurred in untreated subjects over a longer period of time.
Bandura, Grusec and Menlove (1967) found that treated children lost their fear of dogs within one week, while untreated children did not.

In contrast, adult phobias appear to be more persistent (Tucker, 1956; Marks, 1971; Glick, 1970; Errera & Coleman, 1963) following a variety of treatments. The relative intractability of adult phobias, as compared to those of children, is an important distinction, though factors which contribute to this difference remain largely unknown. Agras, Chapin and Oliveau (1972) followed untreated phobic children and adults, finding that, while children's excessive fears tended to improve as compared to adults, after five years 60% of the untreated children still showed mild to moderate phobic symptoms. Of the adults, 20% were unchanged and nearly 40% were actually worse after five years. Intense phobias in children lasted about three years on the average.

Given what is known about the developmental factors in the onset of fears, it appears that the great majority of childhood fears are mild and transient. Compared to those in normative studies, the fears of children referred to clinics for phobia appear to be of much greater intensity and duration. If one observes a child with an intense avoidance response to a stimulus such as water,
there is as yet no means of predicting whether this fear will persist or dissipate over time. The possibility that adult phobia stems from untreated childhood phobias, combined with the tendency of child fears to remit rapidly with treatment, seems to justify focusing intervention efforts on children experiencing intense fears, because these children seem to be at risk for developing a more resistant fear as they become older.

Sex. Many normative studies report higher fear scores for females than for males (Angelino et al., 1956; Lapouse & Monk, 1959, Scherer & Nakamura, 1968), though some have not obtained this difference (Maurer, 1965). Studies of children referred to clinics for phobias (Miller, Barrett, Hampe, & Noble, 1971; Poznanski, 1974) have not found sex differences. It appears likely that normative studies may reflect sex role biases of reporting, while clinical studies indicate absence of the influence of sex on children's reporting of more intense fears.

Socioeconomic status. Socioeconomic factors are noteworthy because they reveal the influence of specific life experiences on the types of fears children experience. A general finding is that lower class children tend more to fear specific and violent events, while higher socioeconomic class children tend more to
have fears which represent a more abstract threat (Angelino et al., 1956; Jersild & Holmes, 1935).

Psychiatric problems. Miller et al. (1974) found that the symptoms most consistently associated with fearfulness to be inhibition, social withdrawal, and anxiety, which they defined as subjective feelings of vulnerability combined with a tendency to somatize. Factor analytic studies of children's behavior problems have generally found that anxious behavior, which includes fearfulness, forms a specific, independent dimension in children (Achenbach, 1966; Dreger, Lewis, Rich & Miller, 1964). From these findings one would predict a sample of children exhibiting a high number of fears to be more anxious (i.e., express more feelings of being picked on, of vulnerability, and of somatic complaints) or inhibited than the general population, though empirical support for this remains rather sparse. It remains to be determined whether intensity of fear is related to other pathology in children.

Poznanski (1974), in one of the few studies comparing excessively fearful clinic children to a matched sample of clinic children without excessive fear, found fearful children (4 - 12 years of age) to be more concerned with physical injury, more anxious, more
likely to have a traumatic event associated with a fear, and more likely to be afraid at night to the point of bedsharing with siblings or parents. Poznanski's study, like others, found fearfulness to be independent of other clinical syndromes in children.

Normative surveys of fears in childhood almost without exception have failed to assess the clinical significance of these fears. However, with the more recent development of an anxiety scale (Miller, et al. 1971), which provides norms for groups of phobic and normal children, it is now possible to assess a child manifesting a specific situational fear with reference to these two groups. Measures standardized in this fashion make possible the comparison across samples of children exhibiting fearful avoidance. Normative studies have provided fear surveys and checklists, none of which has been subject to validation study. Similarly to other fears, no information is available on the frequency and of age onset of water avoidance, nor is there information concerning its antecedents, its relation to sex, race or socio-economic status. While animal phobias, such as fear of snakes, result simply in the avoidance of the feared animals, water phobia may be significant because it prevents the acquisition of water skills which have life-saving potential.
To conclude, epidemiological data indicate that childhood fears are common and vary according to developmental level, while excessive fears can be persistent in children and even more so in adults. Graziano et al., (1979) have criticized the numerous methodological problems within normative fear research, which limits its value. A major shortcoming is that studies have been limited to the identification and enumeration of fear stimuli with checklists, revealing little about children's actual avoidance or subjective self-report. Anecdotal evidence suggests that it is unwise to assume that an individual's fear stimulus corresponds to a labeled environmental fear stimulus. Meichenbaum and Goodman (1979), for example, describe a case of nictophobia which was really a fear of having a heart attack. Lang (1977) and Feather and Rhoades (1972) have similarly stressed the importance of separating the subjectively experienced "fear image" from the fear stimulus. In spite of these suggestions, there has been no research which describes ranges of subjective response to fear stimuli. Future research would probably benefit from Meichenbaum and Goodman's (1979) suggestion that the subject tell a story to a TAT-like picture of what he fears in order to elicit verbalizations about the fear stimulus. Techniques such as this have the potential for providing
information about how children perceive fear situations and if excessive avoidance is associated with maladaptive patterns of covert language.

Definitions: Behavior Therapy, Cognitive Therapy and Cognitive-Behavior Therapy

Before proceeding with descriptions of specific models and their associated interventions, it is necessary to clarify what is generally meant by the terms behavioral, cognitive and cognitive-behavioral as labels for types of therapeutic intervention.

Behavior therapy includes applied behavior analyses based on a loosely knit framework of operant and classical conditioning principles (Wilson, 1978). Originally derived directly from basic laboratory research, these therapies are increasingly based on a body of clinical studies with human populations (Marks, 1978). Some authors distinguish between therapies based on the work of Pavlov and Skinner and those based on Mowrer, Tolman and others, referring to the latter as a "neo-behavioristic mediational S-R model", emphasizing the role of mediation or (s-r) (Wilson, 1978). Nevertheless, one of the thrusts of behavior therapy has been the application of classical conditioning principles to the treatment of disorders such as phobia, obsessive-compulsive behavior,
social skills deficits and specific types of sexual maladaptive behavior. With respect to phobia, the goal is to extinguish anxiety underlying the avoidance of certain cues or situations (Wolpe, 1973).

Cognitive therapies are based on the assumption that maladaptive behavior arises from unconstructive ways of thinking (Ellis, 1973). The therapeutic goal is to increase recognition of maladaptive thought patterns, changing them to more productive patterns, with the assumption that more productive behavior will follow. Examples of cognitive therapies include Ellis' rational emotive therapy and Beck's cognitive therapy. Though applied less in clinical studies, Raimy's (1975) work has adapted George Kelly's personal constructs into a therapeutic approach.

Cognitive-behavior therapies are generally performance-related treatments in which covert events are assumed to adhere to the principles of conditioning. Cognitive processes are emphasized, as are behavioral procedures (Mahoney & Arnkoff, 1978). A variety of procedures may be grouped as cognitive-behavior therapies, including problem-solving, coping skills, and various types of modeling. Constructs from information processing (selective attention, rehearsal, storage)
and from social psychology (expectancy, set, attribution), are utilized, though not combined in a unitary model which accounts for covert processes to a satisfactory degree. Approaches labeled cognitive-behavioral are similar to those labeled social learning in that both emphasize mediation. That is, they tend to recognize as critical those cognitive processes which may mediate between a stimulus and an emotional response, such as appraisals, judgments, and covert speech. Cognitive behaviorists tend to stress reciprocal rather than linear influences among stimuli, covert processes, and overt behavior, assigning equal importance to each (Rosenthal, 1979).

Learning Models and Behavioral Interventions

Cognitive-behavioral interventions designed for the purpose of fear reduction may be seen to reflect current etiological models of fear. These interventions are often complex packages, employing procedures based on classical and operant conditioning, social learning theory, and Soviet models of verbal self-regulation. Disappointment with the results of treatments based solely on older etiological models such as classical conditioning, plus the development of new models which take covert processes into account, has led to active
exploration with a variety of procedures. In order to facilitate evaluation of these procedures with children, results must be compared with those of treatments associated with more traditional etiological theories.

The following review will present models of fear acquisition in a more or less historical sequence, reviewing the results of treatment studies based on each of these models. The etiological models and their associated treatments include classical conditioning and systematic desensitization, operant conditioning and operant procedures, social learning theory and modeling, variants of social learning theory and treatments accounting for cognitive mediation, self-control models for children and treatments or procedures utilizing verbal self-regulation. Cognitive-behavioral interventions will thus be defined within the context of learning models. Because cognitive-behavioral interventions with children employ verbal mediating strategies, findings from developmental research concerning verbal self-regulation in children will also be reviewed.

Classical conditioning and systematic desensitization. Since the original demonstration of the development of a phobia was conducted by Watson & Rayner
(1920) in the case of "Little Albert", deconditioning (extinction) treatments have become widely known and have contributed to the general acceptance by behaviorists that phobias are essentially conditioned anxiety reactions. Eysenck & Rachman (1965), however, note the difficulty in determining the nature of the original causal experience in patients' phobias, concluding that phobias result after cumulative traumatic and subtraumatic experiences. Alternatively, persistent fears can be acquired vicariously (Rachman, 1968).

In systematic desensitization, the treatment most closely associated with the classical conditioning model of phobic fear acquisition, subjects are instructed to imagine successively more fearful images as they relax. According to Wolpe's reciprocal inhibition model, the repeated pairing of relaxation with the imagined fear stimulus gradually diminishes the anxious arousal response, which cannot co-occur with relaxation. Extinction occurs through counter-conditioning, the pairing of a new response with the fear stimulus (Wolpe, 1973).

Research with adults has repeatedly demonstrated the effectiveness of systematic desensitization in reducing fearful avoidance as compared to dynamic therapy (Gelder, Marks & Wolff, 1967) as well as a variety of placebo
treatments (Davison, 1968; Hyman & Gale, 1973; McReynolds, Barnes, Brooks, & Rehagen, 1973). Further experimental evidence has clearly demonstrated the basis of systematic desensitization to be extinction rather than reciprocal inhibition. For example, Waters, McDonald and Koresko (1972) found that rat fearful students administered systematic desensitization without relaxation improved equally to those who achieved lowered arousal with relaxation instruction. Similarly Benjamin, Marks and Huson (1972) found that decreased arousal during treatment did not increase the rate at which subjects lost their fears.

Marks, on the basis of his extensive clinical experimentation utilizing systematic desensitization, has proposed a model of essential elements for reducing fear, the basis of which is extinction achieved through exposure to the fear stimulus (Marks, 1978). According to his treatment model, the therapist exposes the fearful client to the fear stimulus—which can be an event, a feeling, or a fantasy—motivating the client to expose himself long enough for extinction to occur (11 sessions on the average). Marks (1978) believes that exposures of longer duration are more effective because they allow the subject sufficient time to develop self-regulatory or coping strategies, which he labels "unidentified processes".
An experiment by Meichenbaum (1972) may be seen as an attempt to isolate some of these unidentified processes. He compared a cognitive modification procedure with systematic desensitization and a no treatment control in reducing test anxiety in college students. The cognitive modification group, trained to utilize task-relevant verbalizations during imagery of coping with hierarchy scenes, showed greater anxiety reduction than the systematic desensitization group. Results may have been due to the use of "coping" imagery rather than the "mastery" imagery utilized in systematic desensitization or to training in verbalizing constructively rather than defeatingly or not at all.

The systematic desensitization literature involving children is not characterized by rigorously controlled studies (see Hatzenbuehler & Schroeder, 1978, for a comprehensive review). Anxiety-antagonistic responses such as contact comfort (Weber, 1936), imagining an exciting event (Lazarus & Abramovitz, 1962) as well as eating and sensory stimulation (Jones, 1924) have been tried in exploratory studies, though few adequately controlled evaluations of these procedures have been conducted with children. Of these, Mann and Rosenthal (1969) found both imaginal and in vivo systematic desensitization to be equally effective in reducing test anxiety in seventh and
eighth grade children. Because several studies report
the failure of imaginal methods (Lazarus & Abramovitz,
1962; Miller, 1972; Tasto, 1969), it is probably safe to
assume that in vivo procedures are more consistently
successful. Miller, Barrett, Hampe, and Noble (1972) found
no difference between systematic desensitization and
traditional psychotherapy for a variety of childhood
phobias. Ollendick (1979a), however, observed that many of
the behavioral techniques utilized by Miller et al. (1972)
for the systematic desensitization group were also applied
to the comparison therapy groups, thus minimizing the
differences between treatments.

Studies of systematic desensitization with children are
also of value because they have focused on intense fears,
rather than with normal analogues, with the exception of
two reports (Kelley, 1976; Leitenberg & Callahan, 1973),
both of which showed unimpressive results. Judging
from the ineffectiveness of the procedure with Kelley's
normal kindergarten subjects, systematic desensitization
may be more effective with children experiencing more
intense fear.

Frequently utilized with children, active participation
is a variant of systematic desensitization which
incorporates in vivo exposure. Sometimes referred to as
"contact desensitization", this intervention involves exposing the child to the fearful event while he practices relaxation or some other response assumed to be fear-inhibition. The popularity of "contact desensitization" or in vivo desensitization is probably due to the fact that it circumvents coaxing children to concentrate on imagined fearful events. When paired with rewards, contact desensitization is referred to as reinforced practice. Often this involves simply rewarding the child for approaching a feared stimulus. Leitenberg and Callahan (1973), for example, rewarded preschool children for spending increased lengths of time in a darkened room, finding that rewarded children stayed in the room longer than did untreated subjects. Unfortunately, in this study, as in others, operant factors and contact desensitization are confounded.

Murphy and Bootzin (1973) found that active participation reduced avoidance of snakes in snake phobic children. The children in this study approached the snake with the experimenter. Whether the experimenter modeled the approach behavior first did not make a difference; children who simply approached the snake in the company of an adult did as well in reducing avoidance as those who observed the model. The improvement in the two treatment groups as compared to a no treatment control was most likely due to gradual exposure in the presence of an adult.
Two well-designed single case studies utilizing systematic desensitization with children (Ollendick, 1979b; Van Hasselt, Hersen, Bellack, Rosenbloom and Lamparski, 1979) found that results from this procedure were not maintained at follow-up unless another procedure, such as cognitive restructuring, was employed.

In sum, studies utilizing systematic desensitization with both adults and children have yielded consistently positive results for the effectiveness of graduated direct exposure to the fear stimulus in reducing fearful avoidance. Studies producing the best results have involved treatment packages which combine desensitization with operant or cognitive procedures. The better designed studies of systematic desensitization as a procedure with fearful children highlight the importance of exposure to the feared stimulus and cognitive change as components most consistently related to successful treatment outcome.

Departures from classical conditioning. Departures from classical conditioning principles in accounting for aspects of acquired fear include operant and two-stage theoretical formulations. Operant theory accounts for patterns observed in some school phobias and of "brat" behavior in the home (Leventhal & Sills, 1964 - in Miller et al., 1974). Mowrer's initial two-stage theory
of fear and avoidance combines classical and operant aspects. Two causal steps are necessary: The acquisition of fear by classical conditioning and the emergence of avoidance behavior which reduces fear and is thus reinforcing (Eysenck & Rachman, 1965). In treatment studies of fearful children, operant procedures have usually been combined with other techniques such as guided practice (Leitenberg & Callahan, 1973), or verbal self-regulation (Graziano, Mooney, Huber & Ignasiak, 1979) rather than evaluated separately. With adults, Leitenberg, Agras, Barlow and Oliveau (1969) found that verbal praise during systematic desensitization had no effect on subjects' avoidances of snakes. With the exception of Leitenberg's work, there has been little systematic evaluation of operant procedures in treatments for phobia. At present there is too little empirical data on operant procedures with either fearful children or adults with which to make judgments about their effectiveness. A possible exception to this may be seen in a recent trend to explore the effectiveness of self-reinforcement and self-administration of consequences in subjects demonstrating excessive disruptive behavior. Glynn and Thomas (1974) found increased target behavior for classroom children who self-rewarded points for on-task behaviors, and Drabman,
Spitalnik and O'Leary (1973) found that individuals well trained in self-reinforcement sustained reinforced behavior at high levels. Kazdin (1978) has concluded that self-administration of consequences appears to be a viable treatment option.

Dissatisfied with the explanatory power of classical, operant, and two-stage learning theories of fear and avoidance, researchers have proposed theoretical formulations which involve cognitive processes. Seligman and Johnston (1973), for example, have described a cognitive theory of avoidance behavior which derives from both Hull and Tolman and is based on escape paradigms in animal research. They make two assumptions: 1) subjects have preferences for outcomes; and 2) subjects have act-outcome expectancies, so that in a given situation it is expected that a given response leads to a given outcome. In conditioned fear, classically conditioned physiological arousal elicits the emotional component of fear, and the animal expects shock to occur unless he responds. Escape confirms and strengthens an expectancy about the animal's own responding. This theory of avoidance, then, emphasizes the influence of expectancies about the relationship between a subject's own responding and its outcome on how a subject behaves.
Social learning theory & modeling. Rosenthal and Bandura (1978), from a social learning perspective, offer an explanatory model of fear and avoidance behavior which emphasizes covert cognitive processes in addition to classical and operant conditioning as regulators of response patterns. In this model "cognitive regulators" such as expectations, social reactions and appraisals about one's ability to cope with stress situations constitute covert, self-generated stimuli which interact with stimulus determinants in controlling the complex response labeled as emotional arousal. In observational learning, which accounts for both the acquisition and reduction of avoidant behavior, cognitive events can activate arousal in addition to labeling defensive strategies, so avoidance is viewed as dependent upon semantic cues and symbolic experiences (Rosenthal & Bandura, 1978). Processes such as attention are emphasized: In states of excessive fear the subject is assumed to attend to danger cues, worrying about them and vivifying them. Escaping the danger situation validates the threat. In addition, fearful subjects are assumed to rehearse failure and embarrassment, which raise arousal and furthers avoidance, preventing corrective feedback and allowing negative beliefs to go unchallenged. Models are viewed as social examplars who provide information and guidance.
for new response patterns, facilitating disinhibition by performing acts without adverse consequences, enhancing expectations of positive outcome and of personal effectiveness.

Social learning theory has stimulated interest in the application of procedures such as modeling to reduce fearful behavior in children. The basic modeling procedure is to have the fearful child watch a model, filmed or live, approach the feared stimulus. This technique has been found to be more effective if the child has contact with both the model and the feared stimulus, as in participant modeling, or if the child is guided afterwards in performing as the model did (Lewis, 1974; Ritter, 1968). Modeling has been explored as an intervention for children with animal fears such as dogs (Bandura & Menlove, 1968; and snakes (Ritter, 1968), as well as fear of water (Lewis, 1974), dental and medical fears (Melamed, Weinstein, Hawes, & Katin-Borland, 1975) and for children who exhibit socially withdrawn behavior (O'Connor, 1969; 1972).

The largest number of scientifically controlled group studies of fear reduction in children has involved exposing them to some type of model, symbolically or in vivo. Modeling studies typically employ volunteer subjects with age-appropriate, transient fears,
particularly of animals. Though some children exhibit rather intense fear and avoidance, in essence the modeling studies comprise a group of laboratory analogues to clinical fears. Mathews (1978) warns that results from analogue studies must be applied to clinical groups only with great caution, as clinical subjects are likely to experience more intense fear and wide-spread anxiety, and other behavior patterns or environmental circumstances may exist which interfere with response to treatment. The modeling literature has been limited for the most part to animal and social fears, making generalizations to other types of fears difficult.

In general, direct active participation on the part of the child is viewed as more effective than symbolic modeling alone (Bandura, 1977; Kirkland & Thelen, 1972; O'Connor, 1972). Bandura (1977) has also emphasized the importance of overt practice in modeling situations which require many motor components. Ritter's view (1968) is consistent with Bandura's in his suggestion of the importance of physical involvement on the part of the subject for reduction of what he terms "territorial phobias", referring to fears of specific situations such as heights and water. Thus, the importance of actual exposure to the feared situation has been found to be as salient for modeling procedures as for systematic
desensitization. Marks (1978) has stated that the essence of modeling is a variant of exposure, which he terms interactive exposure. Nonetheless, it has been found that the effects of modeling are short-lived, disappearing after several weeks unless followed by some type of practice (Keller & Carlson, 1974).

Despite the volume of empirical evidence supporting modeling as an effective procedure, some rather serious questions about its clinical utility remain. Its usefulness with intense fears remains largely unexamined, so that generalization to children with very significant fears is limited. Modeling studies have utilized children from groups which are atypical; results from studies of inner city black children and university lab school children, for example, are difficult to generalize to either clinic or normal populations. While some results show modeling to be more effective than operant shaping in maintaining prosocial behaviors in withdrawn preschoolers (O'Connor, 1972), the duration of the effects of modeling are largely unknown, as most studies have not conducted follow-ups.

Modeling combined with progressive contact has been shown to be a consistently powerful intervention in reducing fearful avoidance (Bandura & Menlove, 1968; Graziano et
A treatment study of water fearful children (Lewis, 1974) found modeling followed by guided participation to be more effective than either component alone. Compared to modeling alone, participation alone was slightly more effective. Modeling, then, may be more effective when combined with other treatment procedures, particularly if these procedures include some type of practice or exposure (Bandura, 1977).

Social learning theory and cognitive mediation. Work within the social learning framework has attempted to account for cognitive aspects which may have a mediating influence in fearful avoidant behavior. The fear situation is viewed as activating cognitive processes which in turn influence, or mediate, emotional responding. Bandura (1977), for example, has proposed that self-efficacy, or a subject's evaluation of how he will be able to perform in a situation, is a potent predictor of subsequent reduction in fearful avoidant behavior. Self-efficacy is a cognitive process, a judgment, which is assumed to mediate change. This process, along with other higher mental processes, is assumed to interact with experience in a reciprocal fashion. Bandura's emphasis on efficacy judgments is consistent with recent learning theory (Seligman & Johnston, 1973) which
also lends importance to expectations of outcomes. It remains to be determined whether or not children are capable of making efficacy judgments as accurately as adults.

Bandura maintains that increased positive expectations of one's own skills will increase persistence and coping efforts, and that these expectations are more likely to control subsequent behavior than are antecedent determinants such as fearful experiences. Bandura has found that increased self-efficacy and sense of personal mastery better predict change in avoidance behavior than specific interventions such as systematic desensitization (Bandura, Adams & Beyer, 1977). In their study of snake phobic adults, Bandura et al. (1977) showed that subjects who practised mastery were later more able to generalize approach behavior to other fearful situations. Bandura interprets the increased generalization to be the result of practice in approach behavior attributed by the subject to his own effort and self-control.

While Bandura's positive findings for self-efficacy and self-attributed mastery as factors in avoidance reduction are limited to adults, other research in social learning theory, particularly on locus of control, has isolated some important factors in children's
behavior. For example, Rothbaum (1980) has recently developed a model of problematic behavior in children which is based on previous work in learned helplessness. Rothbaum postulates a locus of control dimension in child pathology, finding empirical support for a relationship between a child's perceived lack of control (external locus of control) and behaviors he terms "inward": Inhibition, anxiety, depression, fearfulness, and avoidance. In a sample of children hospitalized for tonsillectomies, Rothbaum found a positive relationship between children's perceived lack of control over the situation and "inward" behavior. Children who manifested an external rather than internal locus of control exhibited significantly more withdrawal and depression than children who perceived themselves as more in control of the situation. Rothbaum's locus of control measure for children (DUE-LOC) correlated with "inward" behavior as well as with coping behavior (Rothbaum, Wolfer & Visintainer, 1979). Lefcourt (1976) cites many studies with similar results in his review of locus of control in children. Lefcourt's work has shown children with more external locus of control to be more likely to perceive their parents as controlling and to rate themselves as less confident. However, locus of control has been found to be predictive only under
certain conditions; for example, locus of control scores predicted academic success only in school children with high interest and motivation to achieve (Keyser & Barling, 1981).

Differential treatment effects for children high and low in personal causation (internal locus of control) were also found by Bugenthal, Whalen and Henker (1977). For hyperactive children with high personal causation scores, self-instruction was associated with improved Porteus Maze scores, while for children low in personal causation, social reinforcement produced greater improvement. Unfortunately, these authors failed to include a description of the personal causality measure in their study.

The work of both Rothbaum and Bugenthal et al. represents a significant contribution to relating cognitive variables such as perceived control over environmental events to coping behavior in children. External locus of control may reflect an attributional style or cognitive set which predisposes a child to perceive a lack of personal control and to manifest subsequent "inward" or avoidant behavior as a consequence. Alternatively, in cases of specific situational fears, the child's avoidant behavior and arousal may influence his perception of self-
control. The relationships between perceived control, self-efficacy judgments, motivation and fearful children's avoidance of stimuli such as water remain to be explored. It seems likely that even children highly motivated for treatment who tend to perceive a lack of control over events in their lives and who report less confident efficacy judgments about their ability to overcome fear of water, would show less progress in reducing fearful avoidance than children who describe themselves as both more internally controlled and confident.

Cognitive-Behavioral Interventions and Clinical Problems

In its attempt to combine rigorously controlled methods and at the same time assess and modify covert symbolic processes within individuals, the rather loose grouping of intervention strategies termed cognitive-behavior therapy may be viewed as a close relative of interventions based on social learning theory. Rosenthal (1979) describes this approach as assigning an active role to the subject, in that his desires, cognitive guidelines, expectations and judgments influence his behavior. Cognitive-behavioral treatments represent an extension of procedures developed within classical conditioning and social learning models, with particular emphasis on cognitive mediating
processes. The most consistent characteristic of cognitive-behavioral treatment packages for both adults and children is the application of a mediating strategy such as problem solving or self-verbalization. Verbal mediation has been defined as talking to oneself to guide problem solving or other behavior (Camp, Blom, Herbert & vanDoornick, 1977).

Self-control models for children. Cognitive-behavioral treatment packages for children frequently involve elements of self-control which derive from two different models, one based on operant conditioning and one based on verbal self-regulation. Operant theorists have pointed out that covert events such as thoughts and images can be modified with the same procedures used to influence overt acts. Changes in these covert operants, or "coverants" (Homme, 1965) can bring about changes in behavior. Karoly (1977) conceptualizes self-regulation as a strategy applicable to any stage of Kanfer's three-stage self-management process: Self-monitoring, self-evaluation, and self-reinforcement. Self-control is the process of changing the frequency of one's own behavior according to the same principles which an experimenter utilizes to modify the operant behavior of a subject. Hence, the control function shifts from the interpersonal to the intrapersonal sphere.
Generally, cognitive-behavioral interventions with children rely more on verbal self-regulation than on self-monitoring, self-evaluation, or self-reinforcement. Because of this, the literature on the development of self-regulatory speech in children will be reviewed. An additional purpose of this review is to allow a critique of treatment applications based on a knowledge of the research with nonclinical populations.

Conceptualizations of how children's speech comes to acquire self-regulatory capacities have grown out of research in this area in the Soviet Union, particularly the ideas of Vygotsky and the extensive laboratory research of Luria (1961). Vygotsky (1962) emphasized the self-regulatory aspect of speech in children. He viewed speech for the younger child as undifferentiated from motor behavior, gradually separating in function with maturity. A young child's speech constitutes comments on ongoing behavior; these comments can acquire an accidental control function through conditioning. Later the semantic aspects of speech and thought are utilized by the child to plan for actions, and this semantic aspect has a stronger impact than the "impulse" or physical stimulus of the word.
Luria's (1961) work applied Vygotsky's ideas in a laboratory paradigm which involved the effects of induced speech on children's performance on a bulb-press task. His results led him to postulate the following stages in the development of verbal self-regulation between ages one and five:

1. Speech of others functions as a physical stimulus to control ongoing responses.
2. Physical, or "impulse" aspects of the child's own speech exert control over the child's activity.
3. Semantic aspects of the child's speech are utilized for self-control.

Vygotsky believed that by age five language has become an essential tool for the development and maintenance of voluntary activity. He hypothesized that Luria's third stage becomes "interiorized", functioning silently after five years of age. By the time a child is six or seven years old, he has the capacity for self-regulation through the semantic aspects of his own speech and covert thought. While some American research has cast doubt on the validity of Luria's stages (see Fuson, 1979, for a detailed discussion), other critical reviews conclude that the empirical evidence generally supports Luria's work (Harris, 1979; Wozniak, 1972; Zivin, 1979).
A substantial amount of research has been conducted showing that self-verbalization of instructions before performance aids children's performance across a variety of tasks (Israel & O'Leary, 1973; Klein, 1964; Meacham, 1979; Meichenbaum, 1977; Roberts, 1977). Rondal (1976) postulates that self-verbalizations facilitate motor responses during learning and help to maintain them during times of confusion. One study (Keeney, Cannizzo & Flavell, 1967) found that some children stopped using a self-verbalization strategy as soon as instruction was discontinued. Patterson (1976), using a delay of gratification task, found that children showed greater self-control when given a cue for when to emit a verbalization. Hence, on tasks which are longer than a few minutes, children may exhibit continued-use deficiencies and require periodic prompting. Instructions to think about conditions in a certain way (i.e., pretending something is not real) have been shown to override the effects of the actual conditions (Mischel & Moore, 1976). This phenomenon has also been observed in children's play (Fuson, 1979).

Anxiety has been hypothesized to increase task-irrelevant speech and to depress self-directive speech (Fuson, 1979). Perhaps when children become anxious they also become confused and begin to focus on irrelevant aspects of tasks. Klein (1964) has noted more irrelevant
private speech in four year-olds who had difficulty separating from a parent as compared to those who had no difficulty with separation. Beyond this study, there has been no research on the speech or the cognitions of children placed in fear-provoking situations. Hence there are no observational data on self-regulatory speech in these situations on which to base ways of modifying the cognitions of children who experience difficulty in overcoming fearful avoidance.

To summarize, the literature on the development and usage of verbal self-regulation in children provides ample evidence that semantic strategies are implemented by children by five years of age. Research paradigms that induce verbal strategies and measure the effects on task performance have shown that verbal self-regulation has helped children in problem-solving, various kinds of memory tasks, delay of gratification, and development of action goals. Anxiety appears to suppress or diffuse spontaneous self-regulatory speech in children. It is not known whether anxiety or fear in children suppresses imposed verbal self-regulation; that is, whether children will continue to practice a learned verbal strategy in a fear-producing situation.
Cognitive-behavioral interventions for children. To date, cognitive-behavioral interventions for children experiencing intense situational fears have been rare. Procedures involving self-regulating instruction or verbalization have much more commonly been applied to children experiencing problems with impulsivity, aggression, hyperactivity and disruptive classroom behavior. A review of cognitive-behavioral treatment studies for these problems will provide some basis for evaluating the potential of this approach for fearful children.

Following an observation that impulsive children displayed an excess of immature, task-irrelevant speech, Meichenbaum and Goodman (1971) developed an intervention strategy that has subsequently been employed on a fairly widespread basis. They taught impulsive eight year-olds to improve performance on the Matching Familiar Figures Test (MFFT), the Porteus Mazes, and the performance scales of the WISC-R with a procedure that included 1) experimenter modeling of reflective responding, 2) fading from experimenter's overt speech to child's overt speech, 3) fading to child covert speech 4) solution strategies, and 5) self-praise. The trained children improved on all measures compared to control subjects, and the gains were maintained at follow-up one month later. A second experiment separated the
components of self-instruction and modeling and found that modeling combined with self-instruction was associated with better performance than either strategy utilized alone. This study, then, showed a treatment package of self-instruction training with induced self-regulatory speech to be helpful in improving self-inhibition in impulsive children.

Not all further studies employing cognitive-behavioral methods with impulsive children have been successful. Finch, Wilkinson, Nelson and Montgomery (1975) trained impulsive 11 year-olds with modeling, self-instruction and delay training and found differences only between self-instruction treatment and control subjects in increased latency on the Matching Familiar Figures Test (MMFT). Kendall and Finch (1978) combined self-instruction with response-cost procedures to reduce impulsive responding in emotionally disturbed boys. While MFFT latency and error scores improved, the boys' self-report remained the same, though teacher ratings after treatment showed the boys to be less impulsive. Other studies (Bender, 1976; Cullinan, Epstein & Silver, 1977; Nelson & Birkimer, 1978) have yielded inconsistent results for self-instruction packages with impulsive children. Generally self-instruction combined with modeling or self-
reinforcement produced minor improvements such as improved MFFT error and latency scores, and these effects were short-lived. With few exceptions, self-instruction packages have not led to significant improvement in impulsive children. Improvement in many cases has been confined to artificial measures such as the MFFT, which may be irrelevant to real-life situations.

Some studies employing cognitive-behavioral strategies have focused on clinical samples, usually children referred by teachers or parents for problem (hyperactive or aggressive) behavior. While focusing on clinically relevant problem behaviors, their generalizability is often limited by very small sample sizes, making controlled comparison impossible. Goodwin and Mahoney (1975), for example, found encouraging results following training of three hyperactive, aggressive boys by exposing them to a videotaped coping model before exposing them to a verbal taunting situation. The boys' coping responses to this situation improved only after multiple exposure to the model combined with verbalizing the narrated strategies. Improved classroom behavior was observed following treatment. Bornstein and Quevillon (1976) also trained three hyperactive boys using the package developed by Meichenbaum and Goodman (1971), different only in that the boys were instructed to imagine themselves as performing
in view of a classroom teacher. A very significant increase in on-task behavior was noted after treatment and at three month follow-up. Palkes, Steward and Kehana (1968) found moderate, short-lived improvement on Porteus Maze performance following self-instruction with hyperactive boys. Their results showed no differences between overt and covert self-instruction.

Camp et al. (1977), using a program similar to that of Meichenbaum and Goodman (1971) with a larger sample of boys identified by their teachers as aggressive, trained them in problem-solving, making judgments and identifying preferences. The treatment group, compared to a no treatment control group, had improved WISC-R performance and MFFT scores, though treatment subjects tended to generate more rather than better solutions to tasks. Bugenthal et al. (1979) also found encouraging results with hyperactive children for the effect of self-instruction on tasks such as MFFT latency and error, and reading comprehension. Results showed instruction to be more helpful to hyperactive aggressive children rated high on internal locus of control, while reinforcement produced greater effects for children rated as low on this dimension.

Positive effects for self-instruction have also been found for normal children learning problem solving tasks
such as 20 questions (Denney, 1975), completion of tedious tasks (Masters & Santrock, 1976), increasing delay of gratification (Toner & Smith, 1977) and resistance to temptation (Monahan & O'Leary, 1971). With the exception of casual observations (Meichenbaum & Goodman 1979), investigators have consistently neglected to ascertain empirically whether or not children trained in self-talk actually utilize the strategy in solving problems. While self-instruction has been incorporated into social-skills/problem solving packages (Urbain & Kendall, 1980), many of the studies use multi-component strategies, making an evaluation of each element impossible.

Investigations of the effectiveness of self-instruction with children experiencing intense fear have been sparse. This is surprising given that Meichenbaum, Gilmore and Fedoravicius's (1971) original study employed the technique with speech anxious college students. Kanfer, Karoly, and Newman (1975) in a well-designed analogue study, found that children trained to verbalize competency statements such as "I am brave" increased their tolerance of darkness to a greater extent than children trained to tell themselves that the dark was not so aversive -- "The dark is a fun place to be." Both types of self-talk were superior to neutral statements, and the content had an
influence on the results. It is difficult to interpret the significance of Kanfer et al.'s results with respect to very fearful children, who, for example, may perceive the dark as very frightening and thus respond differentially to the stimulus-centered verbalization. Graziano et al. (1979), in the only study to utilize this technique with a group of phobic children, successfully reduced children's severe fear of the dark by having them practice self-talk every evening, for which they received reinforcement from their parents. While it is difficult to interpret Graziano et al.'s results as due to self-instruction, reinforcement, or graduated exposure, their findings suggest potential for application of self-instruction training with children with other types of situational fears, such as fear of water. Unlike Kanfer et al., (1975), Graziano et al., (1979) conducted the technique in the presence of the aversive stimulus, possibly confounding the effects of self-instruction with gradual exposure.

The studies of cognitive-behavioral interventions with children reviewed thus far have been the subjects of a recent critique (Hobbs, Moguin, Tyroler & Lahey, 1980) which points out the methodological weaknesses limiting their value. These weaknesses, which center around subject characteristics, specificity of
independent variables, and outcome measures, are as follows:

As is the case with many modeling studies, subjects of cognitive-behavioral studies are frequently either normal school children or the sample is small with a very narrow range of problem behavior. Thus both generality and conclusions about clinical utility are limited. Another common fault is that the independent variables are often not specified. That is, components of treatment packages are not isolated for comparison, so it remains unknown in many cases whether the addition of cognitive methods enhances the effects of other elements of treatment. With few exceptions (i.e., Camp, et al., 1977) treatment manuals are not available and treatments are not specified sufficiently for replication.

Another oversight in many cognitive-behavioral treatment studies is that they make the assumption that techniques such as self-verbalization are responsible for outcome results without providing data verifying whether or not the strategy has been employed by the subjects. Manipulation checks on children's use of strategies are particularly important, since children more than adults have been found to manifest continued-use deficiencies with verbal strategies. A final difficulty with outcome studies
of cognitive-behavioral procedures with children is that many utilize measures of change on instruments such as the Porteus Mazes or the Matching Familiar Figures Test (MFFT) to evaluate results rather than clear, specified problem behaviors. As Hobbs et al. (1980) point out, appropriate targets for behavioral interventions are well-specified maladaptive responses which are functionally related to problem behaviors. While the research on cognitive-behavioral interventions with children shows that these procedures have had some success, the methodological weaknesses of many studies limit their evaluation. Preliminary research carried out by Kanfer et al. (1975) and Graziano et al. (1979) indicates that training in self-verbalization as a coping device has promise in the reduction of children's fear of the dark. Further study of self-verbalizing strategies for other childhood fears, such as fear of water, is needed, especially if this research eliminates the serious methodological weaknesses cited above.

Summary and Conclusions

Normative research on childhood fears suggests that fear of harm or physical injury emerges early as a factor and may persist throughout the lifespan. By middle childhood, cognitive capacity seems well enough developed to
allow for elaboration and separation from more diffuse fears. While an unknown number of these fears persist, they tend to remit more rapidly with treatment. Further research is needed to determine the cognitions and other mediating factors in fearful children.

Both systematic desensitization and modeling appear to be more effective in reducing fearful avoidance when combined with graduated contact. Exposure, in the form of graduated contact or guided practice, is a salient component of successful modeling and desensitization treatments. It remains to be determined if contact and practice are more potent when combined with cognitive-behavioral procedures for fear reduction.

Efficacy and locus of control studies lend some support to cognitive learning models of fear. It is very likely that subjects' judgments of their ability to overcome fearful avoidance and that general sense of personal control would predict improvement.

Both Soviet and American research on the development of verbal self-regulatory capacities in children suggest that children are capable of regulating their behavior with verbalizations by age five. This fact, combined with the promise of verbal self-instruction as an intervention strategy for children over five years of age,
lends support to the further application of this technique with fearful children. This is particularly the case if anxiety tends to depress task-relevant verbalizations or if higher anxiety is associated with a greater incidence of maladaptive self-verbalizations. Application of self-instruction training to a variety of children's problems has produced modest results, though the evidence is positive enough to merit continued evaluation of this procedure. Two exploratory studies (Graziano et al., 1979; Kanfer et al., 1975) have demonstrated considerable potential for the effectiveness of self-instruction with fearful children.

**Purpose of the Proposed Study**

The employment of Meichenbaum and Goodman's (1971) self-instruction training procedure has shown promising results for speech anxious adults (Meichenbaum, Gilmore & Fedoravicius, 1971) but has been used thus far with fearful children only combined with a variety of additional procedures in a clinical case study (Graziano et al., 1979) or with an analogue sample (Kanfer et al., 1975). The present research was designed to evaluate the contribution of a self-regulation (self-talk) procedure and a guided *in vivo* exposure procedure in the reduction of avoidance in water fearful children. Both procedures
were evaluated in combination with each other and in contrast with placebo, or attention control procedures.

It was predicted that children receiving instruction in verbal self-regulation would significantly reduce their fear of water during the study, as would those receiving guided in vivo exposure as compared to children receiving neither treatment. Children receiving guided in vivo exposure in addition to instruction in self-talk were expected to show the greatest gain in fear reduction, while those receiving neither guided in vivo exposure nor instruction in verbal self-regulation were expected to show the least gain. Because all treatments coincided with swim lessons, children receiving either active or placebo treatments were expected to reduce fearful responding as compared to no treatment controls due to their exposure to water.

A second set of objectives included the description of children's fear verbalizations and the measurement of cognitive mediating variables, such as efficacy, locus of control, interest and motivation, with the purpose of ascertaining their influence on response to swim instruction. Children with lower internal locus of control scores and lower self-ratings of efficacy were predicted to demonstrate less improvement in water approach behavior than
children who rated themselves high on these measures. In addition, each child was assessed on a fear and sensitivity measure which provides reference groups of normal and phobic children. This measure allowed a description of the present sample with respect to other normal and phobic samples of children.

Further objectives included providing manipulation checks to determine whether children utilized the induced verbal strategy. Finally, in order to assess the impact of treatment as judged by significant others, ratings of the children's progress were obtained from swim instructors and parents.
METHOD

Subjects

Subjects were recruited by means of public announcements (television, radio and newspapers) in the city of San Antonio, Texas requesting children to participate in a program entitled "Swimming Without Fear," designed to help them reduce their fear of water. Also included in the sample were children from a San Antonio school district which had a swim instruction program for third grade students. These children were recruited through similar announcements, which were sent to parents of over 600 children scheduled to be enrolled in the school swim program.

Of the 82 children described by a parent as having a significant, longstanding fear of water which inhibited them from participating in swim activities, 35 (44%) were eliminated from the study on the basis of a behavioral preassessment. (see Pretreatment Measures for detailed description of this measure and procedure). Of the 47 (56%) children who qualified for inclusion, 22 were male and 25 female, varying in age from 6 to 10 years, with an average age of 7.72 years (93.7 months). Four children were black, 16 Hispanic and 26 white. The percentage of eligible
Subjects is consistent with typical findings of assessment of fears with adults (Bernstein & Paul, 1971).

Subjects were randomly assigned to one of four treatment conditions, with the exception that groups were balanced by matching for age, sex and initial avoidance of water as measured by the behavioral pretest. Subjects who had scheduling conflicts due to vacation plans or other commitments were assigned to a no treatment control group. Thus, assignment to the no treatment control group was non-random. These subjects were administered the pretreatment assessment and called within six weeks for follow-up, at which time they were invited to participate in the program. Table 1 summarizes subject characteristics for all groups.

In the two cases in which a parent wished two equally fearful siblings to be enrolled in the program, one was randomly selected for inclusion in the study and the other enrolled in the same treatment group and given the same assessments, but excluded from the data analysis.

Participants were required to attend all of the training sessions and eight out of ten swim lessons. All of the subjects met these criteria.

Setting
Table 1

Means and Standard Deviations of Subject Characteristics By Treatment Groups

<table>
<thead>
<tr>
<th>Condition</th>
<th>N</th>
<th>Age (in months)</th>
<th>Sex</th>
<th>Initial BRS score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Male</td>
</tr>
<tr>
<td>Self-talk</td>
<td>10</td>
<td>96.1</td>
<td>9.22</td>
<td>5</td>
</tr>
<tr>
<td>Self-talk/Exposure</td>
<td>10</td>
<td>96.5</td>
<td>10.77</td>
<td>5</td>
</tr>
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<td>Attention Control</td>
<td>10</td>
<td>98.7</td>
<td>3.98</td>
<td>4</td>
</tr>
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<td>Attention Control/Exposure</td>
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<td>96.8</td>
<td>10.29</td>
<td>5</td>
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<tr>
<td>No Treatment Control</td>
<td>7</td>
<td>97.7</td>
<td>8.48</td>
<td>4</td>
</tr>
</tbody>
</table>
Assessments, training and follow-up were conducted at two swimming pools with adjacent classrooms, one at the Central YMCA and the other at the Northside Aquatic Center, both in San Antonio, Texas. Both were standard Olympic-sized swimming pools (50 meters), 12 feet deep at one end and three feet deep at the shallow end, with a divider at five feet of depth. Swim lessons and interventions involving exposure to water were conducted at the shallow end of the pool, with occasional trips to the deep end of the pool.

**Staff**

All treatments, assessments and observations were conducted by psychology graduate students. Two female psychology students, both certified swim instructors, conducted all treatment conditions. Trainers were blind to the hypotheses of the study. Another pair of female graduate students, also blind to hypotheses and group assignments, conducted all behavioral assessments, from Pretreatment through follow-up. For these assessments, one served as an observer, while the other conducted the assessment; both scored the children. The student conducting the behavioral assessments had extensive prior experience as a swim instructor with children.
The interview phase of assessments were conducted by the experimenter and another doctoral level clinical psychology intern, both of whom have had considerable experience in child assessment.

A final set of observations was taken by three psychology graduate students, who recorded subjects' lip movements during swim lessons and swim instructors' reports immediately following each lesson.

To insure consistency of assessment and treatment procedures, all staff were trained with a pilot group of children, then were given a clinical manual with verbatim instructions and procedures.

Ten swim instructors had contact with subjects in the study. All were Red Cross trained, though highly individualized in their approaches to instruction. Swim lessons were conducted in groups of three children per instructor. At the first swim lesson all children were grouped according to level of swimming ability. Assignment of swim instructors was random at both swim centers. Self-talk and attention control children attended at different times, so that children in self-talk groups did not have contact with attention control children, though all participants had contact with children enrolled in swim lessons who were not part of the study. All swim instructors were blind to the hypotheses of the study.
Procedure

Parents who responded to announcements were contacted by telephone and interviewed briefly concerning the history of their child's fear. Each parent was told that treatment consisted of skills training concurrent with a two-week series of swim lessons, with swim lessons taking place 45 minutes per day, five days per week and skills training taking place for 45 minutes per day prior to each of the first five swim lessons. Children in the study were enrolled in concurrent swim lessons offered by the YMCA and the Northside Aquatics Center. In total, the child would be at the swim center for one and one-half hours per day for five days, then 45 minutes per day during the following week.

All assessments and training sessions were conducted at the swim centers. For each parent-child pair interested in participating in the program, an appointment was made for an individual assessment at the swim center. Following completion of consent forms by a parent, each child was asked to respond orally to questionnaires and then to complete a behavioral test at the pool while the parent completed written questionnaires in an adjacent room. Following assessment, parent and child were introduced to the trainers and shown the location of dressing rooms and pool facilities.
As mentioned previously, those subjects who kept appointments for pretreatment assessments but who were unable to schedule swim lessons due to vacation plans or other problems were assigned to a no-treatment control condition and told that they would be contacted within a month to arrange swim lessons. These subjects received neither treatment nor swim lessons. After six weeks, this group was contacted, re-assessed, and offered the program. Three of the seven children in this group subsequently completed the program, but were excluded from analyses on effects of treatments.

All treatment conditions were conducted concurrently, with self-talk groups at one hour and attention control groups at the next, the order alternating with each two-week swim session. Treatment groups consisted of six to ten children and two trainers, divided into three to five children per trainer for role-playing. Trainers were randomly assigned to groups in which either in vivo role-play or imaginal role-play were conducted for the duration of treatment. Not all of the children in the groups were part of the study; that is, twelve children who did not meet the behavioral criterion of avoidance were allowed to participate because they were highly motivated to do so.
On the first day of swim instruction, swim instructors placed children into groups according to level of swimming skill. Without exception, children in the study were placed in pre-beginner groups. On the last day of swim instruction, swim instructors administered a standard Red Cross skills test to each child and completed an Instructor Rating Scale for each child immediately following the final swim lesson.

On the sixth day of swim instruction, the behavioral avoidance measure was re-administered immediately prior to the swim lessons.

Within one day following the final swim lesson, parent-child pairs were re-assessed. At this time, parents were told they would be called in one month for a final assessment.

Follow-up assessments were conducted on Saturdays during free swim periods at the swim centers. To increase motivation for keeping an appointment for follow-up assessments, parents of children in the study were told that all family members would be allowed to swim that day free of charge. Follow-up assessments were completed four weeks after the final swim lesson.

Pretreatment Measures: Children
A multifaceted assessment was used to provide data on behavioral avoidance, motivation for treatment, self-efficacy ratings, locus of control, and subjective feelings about the feared situation.

Behavior Rating Scale (BRS). A 16-item behavioral observation instrument has been developed especially for the study of water fearful children (Lewis, 1974). The scale consists of water approach activities arranged in order of difficulty. For the present study, three items found to be redundant were dropped and four items concerning jumping into the pool and approaching deep water were added in an effort to encompass a broader range of approach behaviors as well as to raise the ceiling level of the measure (see Appendix B). For each item, the examiner assigned points in the following manner: a) one, if subject did not try the item; b) two, if the subject tried but failed to complete the item; c) three, if the subject completed the item with a hesitation of 30 seconds or more; d) and four, if the subjects completed the item within 30 seconds. Testing was discontinued after three consecutive failures. Timing was done with a stopwatch when the examiner was at poolside and by counting when she was in the water.
Inter-rater reliability was computed during pilot testing of 18 children, yielding a reliability coefficient (Pearson r) for this measure of .95, which is consistent with that obtained by Lewis (1974).

Only those children receiving a total score of 36 points or less on this measure were included in the study. This criterion, which is somewhat more stringent than that used by Lewis (1974), included children who were hesitant to submerge, could not float, and were unable to let go of the side of the pool.

**Louisville Fear Survey for Children (LFSC)** (Miller et al., 1972). This 60-item inventory was developed to assess the number and intensity of children's self-reported fears (see Appendix C). It has also been used by parents to rate fears of their children. For each item, the child was asked to respond orally whether he had 1) "none", 2) "a little" or 3) "a lot" of fear. The number of fears scored other than "none" were counted to score the number of fears indicated, and the answers were summed for a score of the intensity of each child's fears. An additional 17 items concerning fear of the water, based on items of the BRS, were distributed among the original 60 fear items in a random fashion. This separate water fear scale was scored the same as the other 60 items,
yielding a score for both the number and intensity of the subjects' fears of the water.

Since no previous reliability information was available, test-retest reliability was conducted on this instrument with ten children aged six to ten not included in the study, yielding a coefficient of .918 for testings six weeks apart.

**Interest, Motivation and Efficacy Questionnaire (IME).** A four-item questionnaire was developed to determine each child's motivation to learn to swim and his confidence rating on eventually overcoming his fear and learning how to swim (see Appendix D). For each of four items, responses were scored as one = no, two = a little bit, three = some, four = pretty sure, and five = very very sure. Two items concerned motivation to swim and two items concerned the child's judgment about his ability to learn to swim and to overcome fear of the water.

To assess the reliability of this measure, a test-retest reliability coefficient was computed on the scores of ten children not engaged in swim lessons and not included in the study, with an interval of six weeks. The test-retest reliability was .90 for this group.
Swim Story. This measure was developed to elicit each child's verbalizations concerning the fear stimulus. A TAT-like picture depicting two children in a swimming pool setting, one figure out of the water and one figure in the water, was shown to the child (see Appendix E). Males were shown a picture with two boys and females were shown a picture with two girls. The examiner said, "Here is a picture of two boys/girls at the swimming pool. I want you to tell me a story about this picture. Give your story a beginning, a middle, and an end." If the child omitted feelings or what the figures were doing, he was asked, "What is each doing?" or "How does each girl/boy feel?" After the story, the child was asked "What is the worst thing that could happen to them?" Then he was asked which child (in or out of water) he would be if he were in the picture. Finally he was asked to tell a story about himself in the picture. Query was the same as for the first picture.

Subjects' responses were scored for whether they placed themselves in or out of the water. Responses to questions about what is the worst thing that could happen were scored on a continuous scale of severity from one to three, where one referred to neutral or positive responses, such as "they get tired and go home", two referred to physical injury, such as "he hits his head", and three referred to drowning or death.
Stories were scored according to number of times each of four theme categories was mentioned, with subjects receiving a score for each category: 1) competency/achievement, 2) enjoyment, 3) fear/sadness, 4) inadequacy/avoidance. For story endings, subjects received one point for positive ending, two for neutral, and three for negative. (See Appendix A for scoring examples).

Two raters scored the swim stories according to the above categories. In cases where two raters did not agree, whichever score agreed with that of a third rater was used. The inter-rater reliability for story themes was .81, and for the "worst" and ending questions was .93 and .95, respectively.

Desirable-Undesirable Events Locus of Control Questionnaire (DUE-LOC) (Rothbaum, 1979). This is an 18-item forced-choice questionnaire that rates locus of control in children (see Appendix F). Validated with the Nowicki-Strickland Scale, this measure has also shown a test-retest reliability of .75. No split-half reliability has been reported. The DUE-LOC was chosen for the present research because it includes both pleasant and unpleasant events, and is judged to be more comprehensible to children than similar measures, such
as the Nowicki-Strickland. The greater the number of items responded to in an "internal" rather than "external" direction, the greater is the child's assumed perception of himself as having control over environmental events.

Pretreatment Measures: Mothers

Each mother completed the Louisville Fear Survey for Children (LFSC) for her child. This instrument was identical to that given to each child, including the imbedded water fear items. Scoring was the same as the procedure for children.

Also administered to the parent prior to training were the Fear and Sensitivity Scales, adapted from the Louisville Behavior Checklist by Miller et al. (1971). This 27-item checklist assesses the parent's opinion of the general level of the child's sensitivity and fearfulness (see Appendix K). This measure was chosen because it 1) provides comparison groups of "normal" and "phobic" children, 2) has a split-half reliability of .80 for both phobics and normals, 3) and has been cross-validated on a sample of 500 children. Each item checked in a positive direction for the fear and sensitivity scales was summed, yielding two raw scores which could be compared with the tables provided with this measure.
Treatment Conditions

Training for all conditions consisted of five 45 minute sessions immediately preceding each of the first five days of swim instruction. Treatment consisted of the five training sessions plus 10 swim lessons over a two-week period. Children were divided into two groups for training, with those in the Self-talk and Self-talk plus Exposure conditions given at one time and those in the Attention Control and Attention Control plus Exposure at another. Each large group met in a classroom adjacent to the pool for 20 minutes of group. After 20 minutes of group training, one trainer kept half of the group for individualized work, while the remaining children went with the second trainer to the pool for individualized work. (See Appendix A for verbatim procedures for all treatment conditions.)

During the second week of swim instruction, when the children were no longer receiving training sessions, they were greeted by the trainers at the beginning of each swim lesson and encouraged to do well. Children in the Self-talk conditions received a prompt of the strategy — "Try hard and remember your special words", while children in the attention control conditions were told "Try hard."
Self-talk (ST). Children in this condition were trained similarly to the package described by Meichenbaum and Goodman (1971) as well as by Graziano et al., (1979). First, subjects were given a booklet entitled "My Special Words" (see Appendix J), which contains a story about either a boy or girl who is afraid of the water and overcomes this fear by learning to say some special words. The two trainers read the story aloud with the children. Following this, training consisted of 1) modeling self-talk and having the children practice until they had committed the words to memory, 2) training children to utilize feelings of fear as cues to begin self-talk as a coping strategy, 3) training in following the sequence with self-rewarding statements such as "Good for me! I did it! Wait 'til my mom hears about this!", 4) role-plays of sequence with swim task of child's choice. Role plays consisted of the child choosing a fear eliciting task, the trainer modeling labeling of feelings of fear, utilization of self-talk, attempting the task and saying self-rewarding statements. Each child repeated the sequence following the trainer's modeling, with prompting as necessary. Other children in the group were instructed to observe while each child role-played. When a child chose an inappropriate activity, the trainer suggested one included on the BRS
and judged to be within the range of the child's level of performance.

Self-talk plus Exposure (ST/E). Children in this condition received training identical to those in the Self-talk condition, with the exception that the 20 minute individual role-plays were conducted in the swimming pool rather than the classroom. After 20 minutes of group instruction in the classroom, the children in this condition went to the pool with one of the trainers, who conducted role-play practice with each child individually in the pool while the other children observed.

Attention Control. (AC). Children in this condition received 20 minutes of group discussion with two trainers focused on swim skills such as kicking, breathing and arm movements. During the second 20 minutes, each child role-played a swim skill with the trainer in a sequence in which the trainer modeled the skill and the child repeated it, with prompting as necessary.

Attention Control plus Exposure (AC/E). This condition was identical to the Attention Control condition, with the exception that the individualized practice was conducted with one of the trainers at the pool rather than in the classroom.
Treatment conditions were designed to control for length and type of exposure to trainers and to the swimming pool. All treatment subjects had the same amount of large group discussion followed by smaller group individual role plays. Exposure conditions were equated for the amount of time interacting with the stimulus. Attention control conditions focused on "irrelevant" dimensions of the water situation and a different set of water skills. The self-talk conditions differed primarily in utilization of a verbal coping strategy cued by fearful feelings and focus on fear-inducing aspects of water exposure.

Manipulation Checks

To provide some indication of whether or not children instructed to utilize self-talk actually employed the strategy, two types of observations were conducted.

Direct questions. Swim instructors were requested to ask each child in the study once during each swim lesson, after a swim task attempted by the child, "How did you overcome your fear?" Immediately after the swim lesson, swim instructors reported these responses to the observers who recorded them verbatim. Each child received a score for each of the ten days of swim lessons, according to one of five categories: 1) Don't know, closed my
eyes, didn't think about it; 2) Still scared, can't do it; 3) Said my words; 4) Did what the instructor told me; and 5) Not scared.

Observation of random lip movements. Two observers held cards with grids for recording with subjects' names on top. The first observer shuffled the deck, then the second observer put his cards in the same order. The first observer held a portable tape recorder which played a cassette with a pre-recorded "beep" at 30 second intervals. At the first beep they located the first child. If this child was talking to another child or not engaged in a swim task, then the observers turned to the next subject until a subject was located who was occupied in a swim task. Observers recorded independently whether or not the child's lips were moving. This procedure was repeated until each child was observed, then the cards were reshuffled. The procedure was repeated ten times per swim lesson in each of the treatment conditions. A total of 300 observations were summed for analysis. (100 observations were eliminated because of absences from swim lessons. Because of observer absences, inter-rater agreement was calculated from only 200 observations. Raters were in agreement in 172 cases, yielding an inter-rater agreement of 86%.

Midtreatment Behavioral Measure
Following the fifth swim lesson and preceding the sixth, children in all treatment conditions were assessed with the Behavior Rating Scale (BRS). The purpose of a mid-treatment behavioral assessment was to monitor the rate of progress in reduction of avoidance of water in addition to providing a measure concurrent with the termination of the training intervention.

Posttreatment Measures

Within one day following the final swim lesson, each child was administered the same behavioral and questionnaire measures as the Pretreatment assessment.

Swim Skills Test. The swim instructor completed the Red Cross Swimming Skills Test for each child on the last day of swim instruction (see Appendix L). For each swim skill checked by the swim instructor, the child received one point, so that the greater number of points, the greater the child's level of swimming proficiency. The swim proficiency at posttreatment was assumed to be a generalization measure, based on the assumption that less fearful children would learn more swim skills.

Instructor Rating Scale (IRS). To further evaluate the extent of generalization of intervention induced changes, swim instructors were asked to complete an Instructor
Rating Scale (IRS), developed by Lewis (1974) to evaluate aquaphobic children enrolled in swim lessons. This is a retrospective measure completed by the swim instructor at the end of a series of swim lessons (see Appendix I). The IRS consists of five items concerning the subject's 1) initial level of swimming skills, 2) improvement in swimming skill, 3) initial fear of swimming, 4) improvement in fear of swimming and 5) present avoidance of swimming, all rated by the swim instructor from 1 (very low) to 10 (very high). Modification of Lewis' 1974 scale consisted of adding the word "initial" to the first and third items and changing the fear of swimming item to two items (initial and present fear of swimming) in order to clarify time factors. There is no available reliability or validity data on this measure. It represents the opinion of someone involved with the child in a significant way in the feared situation and is assumed to add to the social validity and generalizability of other measures.

Follow-up Measures

Four weeks after the final swim lesson, children completed the same behavioral and questionnaire assessments as those administered at pretreatment and at posttreatment. In order to measure the generalization of fear reduction to other objects, each mother completed the fear survey (LFSC) for her child.
RESULTS

Subject characteristics

YMCA and School District Comparison. Differences between children recruited from the YMCA and from the Northside Independent School District on 27 different measures were assessed using independent t tests. These measures included sex, age, initial locus of control (DUE-LOC) scores, initial scores from the Interest, Motivation and Efficacy Questionnaire, initial Behavior Rating Scale (BRS) scores, initial self-reported number and intensity of general and water related fears and initial parent reported number and intensity of general and water related fears, and initial swim story scores. The two groups of children differed significantly on only one of the measures. Children from the YMCA scored significantly (p < .03) lower (M = 3.08, SD = 1.31) on one item from the Interest, Motivation and Efficacy Questionnaire than did children from the Northside Independent School District (M = 4.14, SD = 1.15) indicating a lower self-reported judgment of ability to learn to swim for children from the YMCA (t = 2.43, df = 18, p < .05). This result should be interpreted with caution, as one might expect to find by chance a significant difference when so many comparisons
are made. Since this was the only difference between the two groups, both groups were combined for further analyses.

Comparison with normal and phobic samples. There were 32 parents of 17 male and 15 female subjects who completed the Fear and Sensitivity scales of the Louisville Behavior Checklist concerning their child. Scores of these children were compared to scores on the same measure (Miller et al., 1971) of children from a normative sample and from a sample of clinic-referred children judged to be phobic. Means of the three groups are shown in Table 2. Water fearful males had greater Fear scale scores than did the normative sample (t = 4.56, df = 131, p < .001) and less than did phobics (t = 2.99, df = 54, p < .05). A similar result was obtained for water-fearful males on the Sensitivity scale, describing these children as less sensitive than phobics (t = 2.58, df = 62, p < .01) and as more sensitive than normal children (t = 2.79, df = 131, p < .01. Consequently, parents of males in the present sample described their children as more fearful and sensitive than did parents of average children, but less so than did parents of clinic-referred children judged to be phobic.
Table 2

Parameters for Fear and Sensitivity for Water-fearful as Compared to Phobic and Normative Populations

<table>
<thead>
<tr>
<th></th>
<th>Fear</th>
<th>Sensitivity</th>
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<tr>
<td><strong>Males</strong></td>
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</tr>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>* Normative</td>
<td>114</td>
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<tr>
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<tr>
<td>* Phobic</td>
<td>39</td>
<td>4.60</td>
</tr>
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</table>

| **Females**    |      |             |
|                | N    | Mean    | SD  | N    | Mean    | SD  |
| * Normative    | 122  | 1.47    | 2.31| 114  | 2.73    | 2.81|
| Water Phobic   | 15   | 4.33    | 2.60| 15   | 5.07    | 4.31|
| * Phobic       | 22   | 6.00    | 4.25| 33   | 7.06    | 4.46|

* Figures for these groups were taken from Miller et al., 1971.
As compared to parents' judgments of children from a normative sample, parents of females judged their children as more fearful ($t = 7.09, \ df = 135, \ p < .001$) and as more sensitive ($t = 4.36, \ df = 127, \ p < .001$). However, differences in parent judgments for females did not differ from judgments for phobics on the Fear and Sensitivity scales.

**Treatment effects**

**Behavior Rating Scale.** To evaluate the effectiveness of treatment over the course of the study, a $2 \times 2 \times 4$ (Self-talk vs No Self-talk) X (Exposure vs No Exposure) X (Pretreatment, Midtreatment, Posttreatment, and Follow-up) multifactor repeated measure analysis of variance (ANOVA) was computed for the Behavior Rating Scale (BRS) of those subjects who completed follow-up, which included approximately 70% of the sample. The source table is presented in Table 3, and corresponding means and standard deviations are presented in Table 4. Children whose training included in vivo exposure had significantly higher BRS scores ($M = 52.15, \ SD = 7.13$) than children whose training did not ($M = 44.55, \ SD = 9.02$). Subsequent to a marginally significant ($F(1,26) = 3.76, \ p < .064$) Self-talk by Exposure interaction, simple effects of Self-talk were
computed for the Exposure and No Exposure groups while summing across the four trials. While no difference in mean BRS score was found between the Self-talk and No Self-talk groups who were given Exposure, of those in the No Exposure group, children in the Self-talk group had significantly ($F(1,56) = 14.30, p < .001$) higher BRS scores ($M = 47.78, SD = 6.87$) than did children not given Self-talk ($M = 39.71, SD = 11.51$).
Table 3
Sources of Variance for Behavior Rating Scale

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<tr>
<th>Source</th>
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<td>.093</td>
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<tr>
<td>T X S X E</td>
<td>586.15</td>
<td>3</td>
<td>195.38</td>
<td>6.32</td>
<td>.001</td>
</tr>
<tr>
<td>Error</td>
<td>2410.48</td>
<td>78</td>
<td>30.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pooled MSerror term used to evaluate between group simple effect sum of squares = 65.559 distributed on 56.574 df.
Table 4

Means and Standard Deviations for Behavior Rating Scale at Pre-, Mid- and Posttreatment and Follow-up by Self-talk and Exposure Groups

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Pretest</th>
<th>Mid Treatment</th>
<th>Posttest</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Self-talk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>8</td>
<td>28.63</td>
<td>4.0</td>
<td>51.38</td>
</tr>
<tr>
<td>No Exposure</td>
<td>9</td>
<td>27.89</td>
<td>6.3</td>
<td>42.67</td>
</tr>
<tr>
<td>Attention Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>7</td>
<td>31.43</td>
<td>4.9</td>
<td>45.71</td>
</tr>
<tr>
<td>No Exposure</td>
<td>6</td>
<td>28.33</td>
<td>4.0</td>
<td>38.33</td>
</tr>
</tbody>
</table>
A highly significant \((F(3,78) = 168.72, p < .001)\) main effect of Trials was found, indicating a change in BRS scores for all four treatment groups over the course of the study. A marginally significant \((F(3,78) = 2.67, p < .054)\) Self-talk by Trial interaction was also found. Simple effects of Self-talk were computed at each trial, but no significant differences emerged.

A significant \((F(3,78) = 6.32, p < .001)\) Self-talk by Exposure by Trial interaction was also found. BRS means for the four treatment groups are plotted across Trials in Figure 1. Newman-Keuls tests were computed among the four group means at each trial. No group means differed from each other at Pretreatment; however, at Midtreatment children given a combination of Self-talk and in vivo Exposure had significantly \((p < .05)\) higher BRS scores \((M = 51.38, SD = 9.93)\) than did children in the Attention Control group \((M = 38.33, SD = 7.66)\). At Posttreatment and at Follow-up children in the Attention Control condition were found to have significantly \((p < .01)\) lower BRS scores \((\text{Table 3})\) than the other three treatment groups.

To evaluate changes in BRS scores of children in the No Treatment Control (NTC) group relative to changes in BRS
scores of children in the four treatment groups, a 5 (NTC and four treatment groups) X 2 (Pretreatment vs Follow-up) mixed model ANOVA was computed. A significant \( F(4,32) = 6.79, p < .001 \) main effect of groups was followed by a Newman-Keuls multiple comparison test which indicated that children in the NTC group had significantly \( (p < .01) \) lower \( (M = 31.93, SD = 7.89) \) BRS scores than did the Self-talk/Exposure group \( (M = 44.06, SD = 7.23) \), the Self-talk/No Exposure group \( (M = 44.28, SD = 6.99) \) and the Attention Control/Exposure group \( (M = 47.07, SD = 4.66) \), while the comparison with the Attention Control group \( (M = 37.58, SD = 11.44) \) was marginally significant \( (p < .05) \). The only other significant \( (p < .05) \) difference resulting from the Newman-Keuls test occurred between the Attention Control group and the Attention Control/Exposure group. The change in BRS scores for the NTC group is also shown in Figure 1.

A highly significant \( F(1,32) = 241.68, p < .001 \) main effect of Pretreatment to Follow-up was also found, indicating a change in BRS scores when summing across all five groups. Simple effects tests of trials following a significant \( F(4,32) = 14.45, p < .001 \) Group by Trial interaction yielded no significant differences for the NTC group, while significant \( (p < .001) \) differences were obtained for each of the four treatment groups. That is,
Figure 1. Behavior Rating Scale (BRS) for Four Treatment Groups and No Treatment Control Across Trials
all treatment groups were found to change significantly over time, while the no treatment control group did not.

Swim proficiency and swim instructor ratings. To assess the generalizability of treatment effects, a two-way (Self-talk by Exposure) multivariate analysis of variance (MANOVA) was computed for six of the dependent measures: Number of swim skills and the five scores from the Instructor Rating Scales. Using Wilkes lambda, a significant (p < .001) main effect was found for Self-talk. Other effects failed to meet multivariate critical values. In addition, two-way univariate ANOVA's were computed for each of the six dependent measures. Means for each of the six measures by Self-talk and by Exposure conditions are shown in Table 5. Examination of the univariate analyses showed that children given Self-talk instruction irrespective of type of Exposure achieved significantly (p < .001) more swim skills (M = 6.50, SD = 2.78) than did children not given Self-talk (M = 3.55, SD = 1.79). There was also a tendency for instructors to rate children in the Self-talk groups, compared to children in the Attention Control groups, as lower in initial level of swim skills (p < .069), higher in initial fear of water (p < .102) higher in improvement in fear of water (p < .108) and lower in present (Posttreatment) avoidance of water (p < .121).
<table>
<thead>
<tr>
<th>Exposure</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-talk</td>
<td>10</td>
<td>6.3</td>
<td>2.91</td>
<td>1.1</td>
<td>.32</td>
<td>5.1</td>
<td>2.08</td>
<td>7.9</td>
<td>.99</td>
<td>6.2</td>
<td>2.74</td>
</tr>
<tr>
<td>No Self-talk</td>
<td>10</td>
<td>4.0</td>
<td>1.89</td>
<td>1.2</td>
<td>.63</td>
<td>5.7</td>
<td>2.21</td>
<td>7.0</td>
<td>2.83</td>
<td>6.3</td>
<td>2.67</td>
</tr>
<tr>
<td>No Exposure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-talk</td>
<td>10</td>
<td>6.7</td>
<td>2.79</td>
<td>1.0</td>
<td>.00</td>
<td>6.3</td>
<td>1.77</td>
<td>8.3</td>
<td>1.69</td>
<td>7.6</td>
<td>1.65</td>
</tr>
<tr>
<td>No Self-talk</td>
<td>10</td>
<td>3.1</td>
<td>1.66</td>
<td>1.9</td>
<td>1.52</td>
<td>5.0</td>
<td>2.62</td>
<td>6.7</td>
<td>2.91</td>
<td>4.8</td>
<td>3.05</td>
</tr>
</tbody>
</table>

Table 5

Means and Standard Deviations for Number of Swim Skills and Five Items from Instructor Rating Scale (IRS) by Self-talk and Exposure
Fear inventories. To further evaluate generalizations of treatment effects, separate 2 (Self-talk vs No Self-talk) X 2 (Exposure vs No Exposure) X 3 (Pretreatment, Posttreatment & Follow-up) multifactor repeated measure ANOVA's were computed for each of the eight measures from the Louisville Fear Survey for Children (LFSC). Corresponding means and standard deviations are presented in Table 6. For number of self-reported water fears there was a highly significant \( F(2,54) = 48.84, p < .001 \) decrease of reported fears from Pretreatment to Follow-up.

The number of self-reported general fears also decreased significantly \( F(2,52) = 5.18, p < .017 \) from Pretreatment to Posttreatment to Follow-up, as did both the number of parent-reported water fears \( F(1,21) = 28.81, p < .001 \) and general fears \( F(1,19) = 10.41, p < .005 \).

The effects for fear intensity scores were the same as those for fear number scores. That is, there was a significant decrease over the three assessment periods for both children's self-reported water fears \( F(2,54) = 58.68, p < .001 \) and general fears \( F(2,52) = 6.04, p < .005 \) as for parents' reports of their children's water fears \( F(1,21) = 26.14, p < .001 \) and general fears \( F(1,19) = 10.09, p < .006 \). No other main effects nor interaction effects were significant.
Table 6

Means and Standard Deviations for Eight Measures from the Louisville Fear Survey over Trials

<table>
<thead>
<tr>
<th></th>
<th>Pre Treatment</th>
<th>Post Treatment</th>
<th>Follow-up</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Child Self-report</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>N = 30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of water fears</td>
<td>8.84</td>
<td>3.91</td>
<td>5.06</td>
</tr>
<tr>
<td>Intensity of water fears</td>
<td>30.42</td>
<td>5.85</td>
<td>23.87</td>
</tr>
<tr>
<td>Number of general fears</td>
<td>35.73</td>
<td>12.90</td>
<td>33.70</td>
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<tr>
<td>Intensity of general fears</td>
<td>113.63</td>
<td>17.14</td>
<td>110.13</td>
</tr>
<tr>
<td>Parent Report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N = 23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of water fears</td>
<td>10.72</td>
<td>3.54</td>
<td></td>
</tr>
<tr>
<td>Intensity of water fears</td>
<td>32.20</td>
<td>6.95</td>
<td></td>
</tr>
<tr>
<td>Number of general fears</td>
<td>35.13</td>
<td>15.76</td>
<td></td>
</tr>
<tr>
<td>Intensity of general fears</td>
<td>108.91</td>
<td>22.10</td>
<td></td>
</tr>
</tbody>
</table>
Swim stories. To assess children's subjective story responses to pictures of the fear stimulus, interviews of each child at Pretreatment, Posttreatment and at Follow-up were scored for seven different content areas: End of story, Worst fear, Pool position (in or out of the water), Competence, Inadequacy, Fear and Sadness, and Enjoyment. For each of the seven scores a 2 (Self-talk vs No Self-talk) X 2 (Exposure vs No Exposure) X 3 (Pretreatment, Posttreatment and Follow-up) multifactor repeated measure ANOVA was computed. No significant effects were found for how children viewed the end of their stories, for what the worst was thing that could happen, nor for themes of competency. When children were asked if they identified themselves with either the child in or out of the swimming pool, there was a significant (F(2,48) = 21.57, p < .001) change over the three times the question was asked. That is, the percentage of children who responded that they would be the child out of the water decreased from 71% to 18% over the course of the study. No other effects reached significance.

Themes of inadequacy changed significantly (F(2,44) = 3.75, p < .031) over the three administrations. The mean occurrence of inadequacy themes decreased from .692 (SD = 1.15) at Pretreatment to .385 (SD = .71) at Posttreatment, and .192 (SD = .51) at Follow-up. No other
significant effects were found. Themes of fear and sadness also decreased significantly \( F(2,44) = 9.57, \ p < .001 \) over the three trials. The mean occurrence decreased from 1.42 (SD = .70) at Pretreatment to 1.03 (SD = .88) then to .46 (SD = .56). No other significant effects were found. For the theme of enjoyment a marginally significant \( F(2,44) = 3.24, \ p < .049 \) Self-talk by Exposure by Trial interaction was found. Upon further examination using simple effects tests, no noteworthy effect emerged. No other effects were significant.

**Non-treatment Predictors of Reduction in Avoidance and Swim Proficiency.**

To predict reduction in water avoidance and swimming proficiency at Posttreatment, a set of 12 predictor variables was entered into a stepwise multiple regression analysis. The 12 predictor variables included: 1) locus of control scores, 2) whether or not subjects had received previous swim lessons, 3-6) scores for swim story themes of enjoyment, fear/sadness, competency and inadequacy, 7) scores for choice in or out of pool from swim story, 8) scores for response to "worst" question from swim story, 9) scores for ending of swim story, 10) subjects' self-ratings of motivation to learn to swim, and 11-12) subjects' self-rating of efficacy of overcoming fear of water and learning
how to swim. Reduction in water avoidance is the gain in BRS scores from Pretreatment to Posttreatment, while swim proficiency is the number of swim skills recorded by the instructor at Posttreatment. Before the regression analyses, the effects of Self-talk, Exposure and the Self-talk X Exposure interaction were removed from BRS gain scores and from the number of swim skills, thus making the scores independent of all treatment effects. Consequently, the difference between actual scores and scores predicted from treatment effects, or residual scores, were used as criterion variables in the analyses. The criterion for inclusion of a predictor variable in the stepwise regression analysis was based on the significance of the partial correlation coefficient of the predictor variable and the criterion variable prior to entry into the equation. Variables that significantly (p < .05) predicted BRS gain scores along with variables not entered into the equation are shown in Table 7. It can be seen that the best predictor of BRS gain score was the Locus of Control, followed by Worst fear verbalization, then by Inadequacy-Avoidance verbalization. At the fourth step, verbalized fear and Sadness entered the equation, but it did not add significantly (p < .05) to the predictive value of the previous variables. The first three variables to enter the regression equation accounted for 44% of the
variability in BRS.gain scores. No single variable nor combination of variables from the stepwise analysis was successful in significantly predicting number of swim skills.

**Manipulation checks**

**Spontaneous verbalizations.** Children's responses to how they overcame their fear of the water were recorded and the number of times they said "I used my words" was tallied. Of a possible score of 10 (1 for each of 10 swim lessons), children instructed to use self-talk reported actually using it significantly ($F(1,38) = 9.24, \ p < .004$) more often ($M = 3.55, \ SD = 4.7$) than children who received other instructions ($M = 0.30, \ SD = 0.9$).

**Lip Movements.** Children receiving self-talk instructions were found to demonstrate a significantly greater number of lip movements during swim instruction than did subjects who did not receive self-talk training ($t = 5.98, \ df = 38, \ p < .01$). However, the number of lip movements for subjects in the two self-talk groups were not found to be significantly correlated with changes in BRS scores after one ($r = .20$) or two ($r = .11$) weeks of swim instruction.

**DISCUSSION**
Table 7

Predictors of Number of Swim Skills in Multiple Stepwise Regression Analysis

Multiple R = .66382  Multiple R squared = .44065

<table>
<thead>
<tr>
<th>Analysis of variance</th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
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<td>15667.00</td>
<td>522.33</td>
<td>9.453</td>
<td>.001</td>
</tr>
<tr>
<td>Residual</td>
<td>36</td>
<td>1989.10</td>
<td>55.25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Variables in the equation after the third step

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>Standard Error</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locus of Control</td>
<td>.4923</td>
<td>0.5334</td>
<td>13.745</td>
</tr>
<tr>
<td>Worst fear</td>
<td>-.6675</td>
<td>2.0488</td>
<td>20.106</td>
</tr>
<tr>
<td>Fear and Avoidance</td>
<td>-.4800</td>
<td>1.4009</td>
<td>11.629</td>
</tr>
</tbody>
</table>

Variables not in the equation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Partial Correlation</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 1</td>
<td>.169</td>
<td>1.03</td>
</tr>
<tr>
<td>IME 3</td>
<td>-.126</td>
<td>.56</td>
</tr>
<tr>
<td>IME 4</td>
<td>-.119</td>
<td>.50</td>
</tr>
<tr>
<td>Previous Swimming</td>
<td>.020</td>
<td>.02</td>
</tr>
<tr>
<td>Swim Story</td>
<td>-.018</td>
<td>.01</td>
</tr>
<tr>
<td>Competency</td>
<td>.156</td>
<td>.87</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>-.038</td>
<td>.05</td>
</tr>
<tr>
<td>Fear and Sadness</td>
<td>.285</td>
<td>3.10</td>
</tr>
<tr>
<td>Story ending</td>
<td>-.085</td>
<td>.25</td>
</tr>
</tbody>
</table>
It was hypothesized that those children receiving either self-talk training or in vivo exposure would significantly reduce avoidance of water (as measured by Behavior Rating Scale scores and number of swim skills) as compared to children who did not receive Self-talk training or in vivo exposure. It was predicted that those children who received a combination of self-talk training and in vivo exposure would show the greatest gains in avoidance reduction, while those receiving neither treatment would demonstrate the least gain. All treatment groups were expected to show significant improvement as compared to a no treatment control group. In addition, predictors of response to swim instruction were explored, following the prediction that those children with high internal locus of control scores, high motivation and high self-reported efficacy would respond more positively to swim instruction as measured by reduced avoidance and greater swim proficiency.

Children who received in vivo exposure, either focused on trainer-guided swim skills or on self-guided water approach skills, made greater gains in reduction of water avoidance than did children who received similar instruction with imaginal rather than in vivo exposure. The potency of the effect of interactive in vivo exposure on
water approach behavior is consistent with previous findings demonstrating decreases in fearful avoidance with adults (Sherman, 1972) and children (Lewis, 1974), as well as previous observations (Bandura, 1971) which suggest that overt practice is important in the improvement of approach performances which contain multiple motor components. Water approach behavior should be especially susceptible to increases through exposure, as it entails a number of sensory modalities, including a kinesthetic component. Support was not found for the hypothesis that children receiving a combination of self-talk training and in vivo exposure would show superior avoidance reduction as measured by the Behavior Rating Scale (BRS) at the end of treatment. Children who received this combination were not found to achieve greater reduction in avoidance than other children who received self-talk or exposure, though children who received self-talk, in vivo exposure or a combination were found to show greater reduction in avoidance than those who received neither self-talk nor in vivo exposure.

As predicted, there was a substantial gain in water approach behavior through the study. Of interest are the differential gains in approach behavior due to specific treatment or combinations of treatments. Training in self-talk enabled children to attain
approach behavior at a much faster rate than children who were not given the same training. Though in vivo exposure had a considerable effect on overall reduction of avoidance relative to children who were not given such exposure there were no differential changes over the course of the study. Upon closer examination of changes in approach behavior, children receiving a combination of in vivo exposure and self-talk made the most rapid gains in reduction of avoidance during the first week of treatment, but failed to maintain the same rate of improvement after this period relative to children in other treatment conditions. This result lends partial support to the predicted superiority in reduction of avoidance for children who received a combination of self-talk training and in vivo exposure. The reduced rate of change for subjects in the Self-talk/Exposure condition coincided with the termination of the training intervention. The failure of the Self-talk/Exposure group to maintain the same rate of improvement beyond the first week could be due to either 1) self-talk as a coping strategy was helpful primarily during initial stages of contact with fearful stimulus: or 2) the children demonstrated a continued-use deficiency, ceasing to utilize self-talk once instruction was discontinued. A comparison of the number of random lip movements used by subjects
in the Self-talk and Self-talk/Exposure conditions, however, did not reveal a significant reduction between the first and second week of swim lessons. To the extent that random lip movement represents actual use of self-verbalization, this suggests that a continued-use deficiency did not occur. It is more likely that self-talk ceased to be helpful in reducing avoidance after the first week, possibly because levels of fear were less intense after this period.

Again, children who received neither self-talk nor in vivo exposure progressed as a slower rate than children in the other three treatment groups and did not attain a level of approach behavior attained by the other groups.

Self-talk and in vivo exposure treatment administered alone and in combination were effective relative to the No Treatment Control group in increasing approach behavior. As hypothesized, all children receiving treatment showed significant improvement as compared to children in the No Treatment Control group. This result requires replication with a randomly selected control group. The effectiveness of the four treatment groups as compared to the No Treatment Control group may also be attributed in part to in vivo exposure, since children in all treatment groups received swim lessons, while untreated
subjects did not. The similar effectiveness of the two exposure conditions, despite the fact that Self-talk/Exposure involved a coping and self-verbalization strategy in addition to a focus on what were assumed to be more relevant aspects of the fear stimulus, suggests that, for children, gradual in vivo exposure in the presence of an adult overrides the effects of particular strategies employed during this process. This is similar to a result found by Murphy and Bootzin (1973) which showed that, for snake-fearful children, the effect of approaching the snake with an adult superceded active or passive procedures.

Overall, both self-talk and in vivo exposure were shown to be effective in reducing water avoidance as compared to placebo treatments. The result of combining self-talk with in vivo exposure appears to be a "booster" effect at the initial stages of treatment.

With respect to swim proficiency, children who were given self-talk training, regardless of exposure, were reported by swim instructors to have better swim skills than did children not given self-talk training. This provides support for the hypothesis that children in self-talk conditions would demonstrate greater reduction in avoidance of water than those not receiving self-
talk. The superiority of performance children suggests that training in self-talk enabled them to profit more from swim instruction than children not receiving self-talk training. Superior coping may have allowed these children to better attend to and follow swim instructors' directions. The superiority of the Self-talk and Self-talk/Exposure conditions in swim proficiency is especially notable because the children in these two groups did not receive instruction in swim skills as did children in the Attention Control and Attention Control/Exposure groups.

Swim instructors demonstrated a tendency to rate children in the Self-talk and Self-talk/Exposure conditions as initially more fearful of water and lower in initial swim skills than children in the Attention Control and Attention Control/Exposure conditions, but to rate them as showing more improvement in overcoming fear. This result, combined with the observations by swim instructors that the children in the Self-talk and Self-talk/Exposure groups learned more swim skills, suggests that swim instructors tended to view self-talk groups as showing greater overall improvement in coping with the fear stimulus. Findings for treatment effects on dependent measures completed by swim instructors are to be interpreted cautiously, as these were retrospective
and of unknown reliability, as well as based on findings of marginal statistical significance. The observation of swim instructors represents that of a significant other in the context relevant to the child's problem behavior; in the present case their observations lent only weak support for the clinical utility of self-talk training as an intervention.

Although there were differential effects of treatment in enabling children to overcome avoidance behaviors, all of which were effective in that levels attained by a no treatment control group were exceeded, there were relatively few children (23%) who achieved maximum scores on the behavioral avoidance measure. Given that these children were exposed to the water for more than 11 hours, it might be expected that more children would have acquired sufficient approach skills, especially in light of studies which have shown children remitting avoidance of animals within one week (Bandura et al., 1967) or in as little as four eight-minute sessions (Murphy & Bootzin, 1973). Similarly, the subjects in Lewis' (1974) study manifested higher levels of water approach behavior following a combination of treatment and swim lessons. Because these children had higher initial levels of water approach behavior, did not demonstrate longstanding fear of water and were not referred by a concerned parent, it is
very likely that subjects of the present study had more serious water fears. While the training sessions of the present study combined with swim lessons provided 15 exposures, well over the average recommended by Marks (1978) for clinic-referred cases, it is likely that serious water approach deficits require a longer period of treatment, possibly attributable to the complexities of the approach task.

Interpretation of themes disclosed in stories told by children did not reveal any qualitative differences attributable to different treatment effects. Differences that did emerge were changes in frequency of themes over the course of the study. The occurrence of negative themes such as feelings of inadequacy and of fear and sadness decreased continually from Pretreatment through Posttreatment. In addition, children progressively identified themselves as being the child in the swimming pool rather than out of the pool. These changes in verbalizations probably reflect a general decrease in self-reported fear and an increase in self-confidence as a result of participation in swim lessons and increased experience with water activities.

The number and intensity of self-reported water and general fears as indicated on checklists also without
exception decreased over the study irrespective of the treatment administered. Over the course of the study, mothers also reported decreases in both their children's water fears and general fears. This result, parallel to the direction of change in the children's story themes, is also suggestive of a nonspecific effect of training combined with swim lessons, reflecting the fact that children in all treatment groups demonstrated reduction in avoidance of water.

The results of the regression analysis are especially noteworthy, as a significant proportion (44%) of variability in gain in approach behavior was accounted for by locus of control, responses to the question "What is the worst thing that could happen in this picture?" and verbalized themes of inadequacy and avoidance in response to a picture depicting the fear stimulus. Children who responded to the locus of control measure in the direction of lower internal locus of control were less likely to show a reduction in avoidance over time, supporting Rothbaum's hypothesis that children who perceive lower internal controls are more likely to respond to stress with avoidance or other "inward" behavior.

In response to the question on the swim story regarding their worst fear, children who verbalized consequences most
serious, that is of physical injury or drowning, showed the least improvement, similarly to children who verbalized a greater number of themes of avoidance to the picture stimulus. Because these measures were taken from children in the context of a swimming pool and they knew they were going to be dealing with the fear stimulus, one interpretation of these predictors is that they tap a subjective experience of fear as well as expectancy on the part of the subject about how he is going to respond to the fear stimulus. Higher initial levels of fear and arousal have previously been found to be related to poor treatment outcome (Borkovec, 1973), though other research (Kazdin, 1973) has demonstrated no relationship between initial levels of self-reported fear and improvement. The strong predictive value of locus of control and verbalized themes of fear avoidance warrant further investigation to determine whether they represent mediating variables and to explore how scores on these measures interact with intervention procedures. It is not known, for example, whether subjects with lower internal locus of control scores and who verbalized more serious consequences of approach to water would have improved with a longer treatment period. Further research is also needed to determine whether self-talk adapted to individual maladaptive verbalizations is more effective
than its utilization in the present study, which involved inducing the same self-talk irrespective of underlying subjectively experienced fear of water.

Self-ratings of self-efficacy and motivation to overcome fear of water and to learn to swim failed to predict improvement in water approach behavior. It is likely that children's self-efficacy judgments as assessed in this study are not as accurate as those of adults and that motivation was high in all subjects. It is noteworthy that the forced-choice locus of control measure (DUE-LOC) and indirect TAT-like story were better predictors than simple questions of judgment, perhaps because they are less subject to response bias in children, and include a larger number of items, allowing a greater range of response.

Analyses of manipulation check data indicate that children in the self-talk groups were in fact utilizing self-verbalization as a coping strategy, as shown by the fact that they reported utilizing the strategy and that children in these groups were found to demonstrate a greater number of random lip movements than children not trained in self-talk. Correlation of number of lip movements with improvement in response to treatment should clarify whether utilization of self-talk was related to
treatment outcome. Though correlation coefficients between number of lip movements and improvement in BRS scores after one and two weeks of treatment were not found to be significant, this could also mean that some children had "interiorized" the strategy and subsequently failed to show overt lip movements.

Comparisons of the children in the present sample to reference groups of normal and phobic children on measures of fear and sensitivity (Miller et al., 1971) offer some qualification to the term "analogue". Usually this term refers to any nonclinical group of subjects recruited for study or treatment (Marks, 1978). All of the children in the present sample were described by a parent as having a longterm fear of water, present since early childhood. Many of the mothers described themselves as similarly fearful. Because parents of only two-thirds of the participants in the study completed the measure of fear and sensitivity concerning their child, the results of this comparison may reflect some sampling bias. Consequently, conclusions regarding comparisons remain tentative. These children were described as both more fearful and more sensitive than a sample of normal, nonfearful children. The fact that females were not found to be significantly less fearful or sensitive than clinic-referred females described as phobic may
indicate that a female child must demonstrate a greater level of avoidance and inhibition before being brought to treatment, probably because inhibited, shy behavior is considered more appropriate for females and generates less concern in significant others for females than for males.

Reducing water avoidance behavior is a multifaceted problem, in that it requires acquisition of motor and kinesthetic skills to perform the activity. Evidence for the effectiveness of self-talk training was found in differential gains in the BRS scale over the course of the study and in the relatively sharp increase in early stages of treatment, as well as for ratings by swim instructors of swim proficiency at end of treatment. Exposure has been demonstrated in this and other studies to have a potent effect on the reduction of avoidant behavior. Present findings support results of previous research and offer evidence of generalization to a fear of water. Children who reduced avoidant behavior the least were those who received neither self-talk nor exposure. It may tentatively be concluded that self-talk training and exposure are techniques that can offer support as adjuncts to regular swim instruction. Inasmuch as reduction in avoidance behavior is an integral part of learning to swim, especially among children with a long-
standing history of fear of water, it is suggested that locus of control and fears of consequences of water approach can be used to screen children who may require longer periods of treatment.
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APPENDICES
<table>
<thead>
<tr>
<th>Clinical Manual</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Procedures</td>
<td>121</td>
</tr>
<tr>
<td>Assessment Procedures</td>
<td>129</td>
</tr>
<tr>
<td>Scoring Criteria for Assessment Instruments</td>
<td>131</td>
</tr>
</tbody>
</table>
I. Treatment Procedures

A. Group 1

1. Training Session 1
(ST and STE groups in room adjacent to swimming pool)

Tl: Hi kids. My name is (________) and this is (________), (introduces Trainer 2). Let me see, do we know all of your names? (Asks each child's name.) Who can tell us why we are having this special group? Yes, it is for swimming lessons, but what else? That is right. It is because each one of you wants to learn how to swim but feels a little nervous about going in the water.

T2: You know what? There is no difference between you and other kids who are not afraid of water. They have just learned how to do something that you have not learned how to do yet. You can learn to not be afraid of the water, little by little, just like you have learned how to do other things that are a little scary.

Tl: That is right. And this is a class for learning how not to be afraid of the water. Who can name something else they have learned that was scary at first? That is right. Learning how to ride a bike and to roller skate and to swing way up high were all scary when you first tried, weren't they?

T2: (passing out "My Special Words" booklets, boy's version to males, girl's version to females) We are going to start by reading a story; I will read out loud and you read silently along with me. (Reads story aloud, encouraging participation and comments.)

Tl: Who can say the special words? (points to volunteers until each child has said the words aloud.) Good!

T2: Now it is time for our next activity. (Names children in STE group). Now you will come with me and the rest will stay with Tl.

Tl: (With ST group in room adjacent to pool.) Now we are going go practice using our special words. I want everyone to watch while we take turns. Let us pull our chairs around so everyone can see. Who wants to be first? (takes a volunteer.) Okay (subject's name) What would you like to practice using your special words for? (If child chooses inappropriate activity, T suggests putting face in the water, submerging, or similar beginning approach skill.) Now, everyone watch. Elizabeth (or other subject's name) you are going to be the swim teacher and I am going to be you. You tell me it is time to put our heads under the water.
(or similar skill of child's choosing.) (Child role-plays teacher).

T1: Ooh, the teacher is telling us to put our heads under the water. That makes me feel a little scared. I can tell because I feel those "butterflies in the tummy." When I feel those butterflies in the tummy, I say my special words so I will feel more brave. In a louder voice:) I am a brave girl, I can learn not to be afraid of the water. (repeats words twice). Okay, now I am feeling more brave, so I am going to try what the teacher said. Here I go, dunking my head under! (acts out motion). Hey, I did it! Good for me. Wait until I tell my mom about this!

T1: Now Elizabeth, it is your turn to practice. I will be the teacher and tell you that now it is time for everyone to dunk their heads under. Now what do you do? (subject says, I say my words). Right! Very good! You show me what you will do, okay? (T1 and Elizabeth go through the role play until Elizabeth has the sequence of identifying fear, saying words, attempting the activity and saying self-reward.) Very good Elizabeth. Now remember to use your words at swim class when the teacher tells you to do something a little bit scary. (T practices a role-play with each child until they have learned the sequence).

Remember to use your special words when you are at your swim lesson today. Be brave! See you tomorrow.

T2: (at shallow end of pool with STE group) Now, everyone come and sit by the edge here while I get into the water. Good. We are going to practice saying our special words, so I want everyone to watch while we take turns. Who wants to be first?

T2: Okay. Bobby, what is it about going in the water that scares you a little? (If child names an advanced skill such as diving, T suggests trying to put his face in the water or submerging.) You are going to be the teacher and I will be you. (Child role-plays teacher).

Ooh, the teacher just told us to put our heads under the water and I feel a little scared. I can tell I'm scared because I feel butterflies in the tummy. When I feel that scared feeling, I say my special words: (Louder) I am a brave boy, I can learn not to be afraid of the water. (repeats words). Now I am feeling more brave, so I am going to try what the teacher told us to do. (acts out motions of hesitatingly submerging under water.) I did it! Good for me! Wait until I tell my mom about this.

T2: Now Bobby, it is your turn. I will be the teacher. (In louder voice) Now it is time to put our heads under.
Okay Bobby, what do you do?  (Bobby says:  I say my special words).

T2:  Good.  Show me how you feel and what you do.  (T and Bobby go through role-play until Bobby has the correct sequence).  (T practices a role-play in the water with each child until each one has learned the correct sequence.)

Remember to practice your special words during your swim lesson.  Be brave and I will see you tomorrow!

2. Training Session 2
(ST and STE groups in room adjacent to swimming pool)

T1:  Hi everybody.  Let us go around the room and each one of you tell us something you tried at your swim lesson yesterday (Each child is encouraged to describe a swim task he tried).  You are all making progress in becoming less scared, a little at a time.

T2:  As a reminder, we are going to read our story again (Passes out booklets of "My Special Words").  Today, everyone read aloud with me, okay?  (Group goes through story, practicing fading of words from "loud" to "whisper" to "silent").

T1:  Who can say their special words?  (T chooses volunteers until each child has said the words).

T2:  Who knows what to do about saying their special words under water?  (Children volunteer responses)  That is right, you say them silently to yourself.  Can everyone close their eyes and say the special words to themselves?  Let me see you.  Good.  I can tell you are using your words when I see your lips moving.

T1:  Everyone is doing a good job of remembering their words.  Today we are going to divide into the same groups as yesterday.  (Names children in ST condition) you stay with me, and you (names children in STE condition) go with T2.

(T2 at shallow end of pool with STE group)

(T1 in classroom adjacent to pool with ST group)  Role-plays are conducted exactly as Training session 1, including:  T helping child to choose approach activity to role play.  T plays child, identifying fearful feelings, utilizing self-talk, coping with approach activity and verbally self-rewarding.

Child then role-plays, with corrective feedback from trainer.
All children in group are encouraged to observe the role-plays.

3. Training Session 3
(ST and ST/E children with trainer in room adjacent to pool.)

T1: Hi kids. How did you do at swim lessons yesterday? (short group discussion follows). Now, we want each of you to tell us something you tried yesterday that was scary. Tell us how you used your special words. (As each child recounts an activity, trainers prompt them in sequence of identifying feelings, saying words, trying task, and self-reward). For example, did you remember to say "Good for me!" Who remembered to tell their mom about how brave they were? Good!

T2: Today, instead of reading our story let us see if we can say out loud from memory what the story is about. Who can start? (Trainers prompt children in reciting "My Special Words" story from memory).

T1: Who can say their special words? (After several volunteers) Good! Can everybody say them whispering? Good! Now, can you close your words silently? Good!

T2: (Names children in STE group) It is time for you to come with me like we did yesterday.

T1: That is right. (Names children in ST group). You stay here with me for our role-plays.

(Role-plays for both groups conducted exactly the same as for previous training sessions).

4. Training Session 4

(ST and STE subjects with trainers in room adjacent to swimming pool.)

T1: Hi everybody. I heard that all of you did very well at swim lessons yesterday. Who had something good to tell your mom? (Group discussion of tasks attempted by children.) Who remembered to use their special words? (Group discussion, with each child reporting a task they performed. As children report tasks, trainers comment). Good, you were not able to do that a few days ago. You are getting more and more brave each day. T2: Who is remembering to say their words each time they feel a little scared? (As children report, trainers remind them of the sequence of identifying feelings, utilizing self-talk, attempting task and rewarding self verbally).
T1: For today's role-plays, we want each of you to think of a task that you want to use your special words with in a swim class. Names ST group members) Okay, you stay with me and the rest go with T2.

Role-plays for both groups conducted the same as for previous training sessions.)

5. Training Session 5

(Both trainers and ST and STE subjects in room adjacent to swimming pool.)

T1: Hi. Guess what? Today is our last day for practicing our special words. Everyone knows how to use them really well.

T2: Everyone is getting braver and braver all the time.

T1: That is right. Today we want each of you to tell us some things you can do in the water now that you could not do when we started. (As each child names approach skills, the sequence of feeling fearful, utilizing self-talk, attempting task and self-rewarding are reviewed and each child's progress in overcoming fear is pointed out.)

T2: Remember (though you do not feel scared much any more, what do you do when you do feel a little scared? (Group discussion of future swim tasks and utilizing self-talk strategy to cope with fearful feelings associated with going to the deep end of the pool, jumping in the water, etc.)

T1: Since today is our last day of role-playing, we want everyone to concentrate very hard on being brave and using their special words. (Names ST group members) Okay, you stay here with me.

(Role-plays conducted the same for previous training sessions).

B. Group 2
1. Training Session 1.

(With AC and ACE groups together in room adjacent to the swimming pool.)

T1: Hi kids. My name is ___________ and this is ___________ (names T2). Let us see, do we know everyone's name? (asks each child's name) Who can tell us why were having this special group? Yes, it is for swimming lessons, but what else? That is right, it is because each one of you wants to learn to swim but feels a little nervous.
T2: You know what? There is no difference between you and other kids who are able to go in the water and do things. They have just learned how to do something that you have not learned yet. You can learn swim skills, little by little, just like you have learned how to do other things that were difficult.

T1: Who has learned to do something else that was really hard to learn? Don't tell me, we are going to have you draw a picture of it and then we will talk about each picture.

(Trainers pass paper and drawing pens to group).

T2: (After children have drawn pictures.) Who wants to be first to show us something they learned how to do?

(Trainers share pictures emphasizing practice of skills in learning how to ride a bicycle, roller skate, etc.)

T1: Now it is time for our next activity. (Names children in ACE group) you go with T2 to the pool. The rest of you stay with me.

(T1 with AC group in room adjacent to swimming pool)

T1: Today we are going to practice kicking with straight legs. It is important for helping you to be a good swimmer. Everyone pull their chair around so they can see. Good. Who wants to be first? I want everyone to watch while we take turns. (Takes a volunteer).

T2: (Sitting on floor with legs out with child.) Okay, show me how you kick with your legs. Good, now watch me. (Shows child how to kick legs with knees locked.) Now you try it. Good! Remember to keep your knees locked. Very nice.

(Trainer has each child come to center of group and models leg kicking, followed by child practicing the activity.) Remember to keep your legs straight when you kick during swim lessons today!

(T2 with ACE group at shallow end of the swimming pool)

T2: Today we are going to practice kicking with straight legs. It is important for helping you to be a good swimmer. Everyone come and sit on the side and watch. Good. Who wants to be first? I want everyone to watch while we take turns. (Takes a volunteer).

T2: (In water holding onto the side of the pool) If you cannot get in the water, then lie on the side with just your legs in. Now, watch me. (Kicks in water with straight legs.) Now, watch me. (Kicks in water with straight legs.) Now you try it. Good! Remember to keep your knees locked. Very nice.

(Trainer has each child watch her kick correctly, followed by child practicing, with at least legs in the water.)

T2: Remember, keep your legs straight during swim lessons today!
2. Training Session 2.

(With AC and ACE groups together in room adjacent to swimming pool.)

T1: Hi everybody. Who remembered to kick straight in swim lesson yesterday? I heard that all of you did very well.

T2: Who can show us that they remember how to kick correctly? Let us go around the room and each one can show the group.

T1: (After each child has demonstrated kicking) Very good. Let us all kick together so we will be very very good.

T2: Who can tell us when they used their kick during swim lessons yesterday? (Allow group discussion of when it is appropriate to kick.)

T1: Okay, it is time for our role-play. You (names ACE children) go with T2 to the pool and the rest of you stay with me.

T1: (With AC group in room adjacent to the swimming pool). Today we are going to practice holding our breath, a very important thing to know for good swimmers. I want everyone to watch while we take turns.

(T1 models holding breath for 10 seconds individually with each child, after which the child practices) Good. You are catching on fast!

(T1 models head turning and breathing combined as during swim stroke individually with each child, after which the child practices). Good!

T1: Remember to use your breathing and kicking during swim lessons today!

(T2 with ACE group at shallow end of swimming pool)

T2: Today we are going to practice holding our breath, which is very important for good swimmers. I want everyone to sit here on the edge while we take turns, and remember to watch.

(Trainer models holding breath for each child, under or above water depending which the child is ready to do, after which the child practices.) Good, you are catching on fast!

Trainer models breathing and head turning as during swim stroke with each child, in or out of the water according to his choice, after which child practices). Good!

T2: Remember, everyone, to use your breathing and kicking during swim lesson today!

3. Training Session 3.

(Both groups (AC and ACE) in room adjacent to pool)
Hi kids. Who practiced their breathing yesterday during swim lesson? (Short discussion of what children did).

Good! Let us review what we have learned so far. What have we practiced besides breathing? (When someone answers correctly) That is right, we have also learned how to kick properly.

Okay, let us all review our skills together, one at a time. What is the first thing we learned? Right! Kicking with straight legs is what we learned; Let us all do it right now. (Trainers and children kick together.)

What is the next skill we learned? Right! Holding our breath for 10 seconds. Who can show us how to do it? (Choses a volunteer). Okay, I will count to 10 while you hold your breath. One, two, three ..... 

Who can remember what else we learned yesterday? Right, we learned how to breathe and turn our heads at the same time. Who can show me how to do it? (Chooses a volunteer.) Good! Now let us all do it together 10 times. Breathe in, blow out, breathe in, blow out ....

Okay, it is time for our role-play activity. (Names ACE group members) you come with me.

(With AC group members, Tl in room adjacent to swimming pool). Role-play is correct arm-stroke, with trainer modeling for individuals while children watch and practice individually while the group observer, exactly as in previous training sessions.

(ACE group members at shallow end of swimming pool). Role-play is the same as for AC group. Children practice with trainer individually in the water if they are willing, at the side of the pool. For in the water role plays, the trainer is in the water holding the child, who is holding onto the side.


(Both AC and ACE conditions in room adjacent to swimming pool.)

Hi kids. I heard that all of you did very well in swim class yesterday. Who remembered to practice what we have learned? (Short discussion by whole group of what skills were utilized.)

Who can show the group some of the skills that we have learned? (Chooses volunteers to review breathing, kicking, and arm-stroke.) Good! Everyone is remembering very well what they learned.
T1: Let us practice together each one of the skills we have learned. Watch me and everyone do what I do. (T1 models kicking, then breathing and armstroke, with children copying while T2 gives corrective feedback.)

T2: Okay (names children in AC/E condition) it is time for our role plays at the pool. The rest of you stay here with T1.

(AC members with T1 in room adjacent to pool. Role-play is correct arm stroke and kick combined, with trainer and subjects using a bench for practice.)

(AC/E members with T2 at shallow end of swim pool. Role-play is the same as for AC group. Trainer and children practice with trainer holding child in the water or with child lying at edge out of the swimming pool, as child wishes.)

5. Training Session 5.

(Both AC and AC/E subjects with both trainers in room adjacent to swimming pool.)

T1: Hi everybody. Today is our last day for practicing swim skills. Everyone is improving a lot.

T2: Can each of you tell us some swim skills that you know now that you did not know when we started? (Children one by one encouraged to share what they can do. Each child's progress is pointed out as they take turns. If skills from previous sessions are omitted, subjects are reminded of them.)

T1: Since today is our last day, we want everyone to concentrate and work hard. (Names children in AC condition) okay, you stay here with me. The rest of you go with T2.

(AC condition subjects role-play the correct combination of kicking, breathing and arm stroke, utilizing a bench for practice.)

(ACE condition subjects have the same exercise at the pool, with T2 either holding them in the water or having them lie at the edge of the pool, according to the subject's approach ability.)

II. Assessment Procedure.

A. Pretreatment Assessment.

E: (to mother) Hello. I will be taking your child into the next room for about 15 minuts to ask some questions similar to the ones that I would like you to complete while we are working (shows mother questionnaires).
First, will you please read this consent form and sign it? I will wait here in case you have any questions (waits).

Please complete as much of this as you can while we are working. When we are finished, my assistant will take (child's name) to the pool so she can show her what she can do in the water. We will come back here first. Ready, (child's name)?

(In room with child). Okay (______), I am going to ask you some questions. How old are you? What month is your birthday? (E reads items from IME (see Appendix D) sheet and records answers).

E: Now I am going to read you a list of things that some children are afraid of. For each one, if it scares you, say yes, if not, say no, (For each "yes" answer, E asks a little bit or a lot?) (E reads Louisville Fear Survey Items to subject)

E: Good! You have been working hard. (Shows child picture (female picture for female subjects, male for male subjects). See this picture? It has two boys/girls and a swimming pool. I want you to tell me a story about this picture, a story with a beginning, middle and end. Tell me what these two boys/girls are doing and how they feel. (E writes out story as subject dictates). If subject eliminates action, feelings or ending, these are queried by saying "And how does the little girl feel? And what is the little girl doing? How does your story end?"

E: What is the worst thing that could happen to these two boys/girls?

E: If you were in the picture, which one of these boys/girls would you be? Why?

E: Now, I want you to tell me a story about you in this picture, a story with a beginning, middle and end. Tell me what you are doing and how you are feeling. (As in first story, E queries for what subject in story is doing, feeling and how story ends). What is the worst thing that could happen to you in this story?

E: Good! You have been working very hard. Now we have just one more set of questions, okay? (E asks all items from DUE-LOC, requesting that child make a choice between A and B in cases where the answer is "both" of "I don't know.") (See Appendix F for DUE-LOC items.)

B. Behavioral Assessment in swimming pool. (Same procedure for pre-mid-Posttreatment and follow-up)
E: (has BRS on clipboard.) Hi (_______), how are you today? Are you ready to show me what you can do? Good. Got your bathing suit and a towel? Good! (To child's mother) We will be going to the pool so (_______) can show me what he can do in the water. We will come back as soon as we are finished.

(At pool). E sits on side with feet in the water. (_______), show me if you can sit on the side with your feet in. Now, show me if you can get in and hold on to the side. Can you put our face in? (E continues through items on BRS until submect misses three consecutive items. Examiner enters the water at item 10, staying two feet away from child except to hand him the flotation device. (See Appendix B for Behavior Rating Scale)

C. Posttreatment Assessment.

(same procedure as Pretreatment assessment)

E: (to mother) I would like you to complete this same survey as you did two weeks ago while I ask your child the same things I asked him before. After that, he will go with my assistant to show her what he can do in the water.

E: (to swim teacher of child) Will you please complete this scale concerning (_______)? (waits while instructor completes scales.) (See Appendix J for Instructor Rating Scale)

D. Follow-up Assessment.

(same procedure as Pretreatment assessment).

E: (to mother) Thank you for coming. Before (_______) goes to the pool, I would like to ask the same questions as before. We will be about 10-15 minutes.

III. Scoring Criteria for Assessment Instruments.

A. Behavior Rating Scale (see Appendix B for items).

Examiner assigns 4 points for each item completed within 30 seconds, 3 points for each item completed after 30 seconds, 2 points for each item attempted but not completed, and 1 point for items refused or not attempted.

Examiner times items by pressing stopwatch as soon as command is given and again when child has completed the item.
Examples of attempting but failing to complete an item include failure to submerge completely on submersion items, holding onto the side while executing a jump, and failure to let go of the side before pushing off head first to the examiner.

B. Louisville Fear Survey for Children (see Appendix C for items).

Items 3, 11, 16, 23, 27, 28, 33, 37, 38, 40, 45, 52, 54, 59, 64, 68, and 77 are to be scored separately, as they represent a separate scale of water fears.

If child or mother indicates that no fear is experienced, the item is scored 1 by the examiner. If "a little" or "sometimes" is the response, the item is scored 2. If "a lot" or "always" is the response, 3 is scored for the item.

The total number of 2's and 3's are summed for a Fear Number score, with a larger number indicating a greater number of fears.

The weighted scores, with 1, 2, or 3 as the weight for each item, are summed for a Fear Intensity score, with a larger score indicating a greater intensity of fear.

The water fear items are scored in the same manner, yielding both a number of fears score and an intensity of fear score for water.

C. Interest, Motivation and Efficacy (see Appendix D for items).

Of the four items included in this questionnaire, two concern motivation and interest and two concern confidence of the subject's estimate of his own efficacy in overcoming fear of the water and learning how to swim.

For each item, a higher score indicates a greater motivation or efficacy. Items 1, 2a and 2b are summed for a motivation score, and items 3 and 4 are summed for an efficacy score.

D. Swim Story (see Appendix E for procedure and pictures).
The child's two stories are scored as one unit, with points assigned to four theme categories: 1) competency and achievement, 2) enjoyment, 3) fear, sadness, 4) inadequacy and avoidance. One point is assigned to a category each time that theme occurs. Examples of themes are as follows:

**Competency, achievement**  
"I learned how to swim"  
"She's a good swimmer"

**Enjoyment**  
"They're having fun playing in the water".

**Fear, sadness**  
"She's scared".  
"He's afraid of the water".  
"He's sad because he can't swim".

**Inadequacy/avoidance**  
"He stays out of the water it's too cold".  
"She can't learn to swim"

Each child receives four theme scores, with a higher score indicating a greater number of occurrences for that theme.

Story endings and the child's choice of being the figure out of the water and response to "what is the worst thing that can happen?" are scored separately, so that the swim story yields seven scores: four theme scores, one ending score, one choice score and one "worst" score.

Story endings are rated either positive, neutral, or negative. Material scored is the child's response to the question "How does your story end?" The following are examples of ending scores.

**Positive (1 point)**  
"He takes lessons and learns to swim".  
"She tries hard and to swim".

**Neutral (2 points)**  
"They keep playing".

**Negative (3 points)**  
"She cries and goes home"  
"She's sad because her friend learns and she does not".  
"He's too scared to go into the water."
Choice scores are obtained from this child’s response to the question "If you were in this picture, which of these two boys/girls would you be?" If the child indicates the figure in the water, he receives one point. If he indicates the figure out of the water, he receives two points. Higher scores indicate that the child identifies himself as a person who does not go into the water.

"Worst" scores are obtained from the child’s response to the question "what is the worst thing that could happen?" The following are examples of "worst" scores:

Neutral (1 point) "They get cold".

"They're tired".

Physical injury (2 points) "He bumps his head".

"She jumps off and hits side of pool".

Death (3 points) "He drowns".

"He goes under and never comes up".

E. Desirable-Undesirable Events Locus of Control (DUE-LOC) (see Appendix F for instrument and scoring key).

The DUE-LOC is in a keyed form, with a "+" by the "internal" answer for the nine positive events, and a "-" indicating the "internal" response to the negative event items. Each subject's responses are compared to the key, so that the number of items responded to like the item marked yields a score of perceived internal control over environmental events.

The higher the combined positive and negative event scores, the greater the subject tends to perceive himself as having internal control over a variety of environmental events (see Rothbaum et al, 1979).

F. Instructor Rating Scale (IRS) (see Appendix J for complete scale.)

Instructors rated each child after a ten day period of swim lessons on five items on a scale from 1 (very low) to 5 (very high).
For items 3 and 5 a higher score indicates a greater avoidance of the water.

For items 1, 2 and 4, a higher score indicates greater swim skills and greater reduction in avoiding the water.

G. Louisville Behavior Checklist, Fear and Sensitivity Scale (LBCL) (see Appendix L for items)

This measure is scored as described by Miller et al, (1971. That is, the respondent receives one point for each item checked by the mother in a positive direction for the fear items and the sensitivity items, yielding a score for each category. The greater number of items endorsed, the greater the mother perceives the child as sensitive and fearful.
Appendix B
Behavior Rating Scale

Child's Name ___________________ Date ____________

1. Approaches side of pool 1 2 3 4
2. Enters water from side of pool (Feet first) 1 2 3 4
3. Holds onto side and gets wet to neck 1 2 3 4
4. Puts face in water holding onto side 1 2 3 4
5. Submerges completely while holding on 1 2 3 4
6. Prone float, holding onto side 1 2 3 4
7. Floats out on kickboard 2 feet from side 1 2 3 4
8. Lets go of side of pool 1 2 3 4 *
9. Walks out two feet from side 1 2 3 4 *
10. Puts face in two feet from side 1 2 3 4 *
11. Submerges completely two feet from side 1 2 3 4 *
12. Jumps into shallow water 1 2 3 4
13. Head first toward instructor in shallow end 1 2 3 4
14. Takes kick board to deep end 1 2 3 4
15. Enters deep end with flotation device 1 2 3 4
16. Enters head first in deep end to instructor 1 2 3 4
17. Jumps into deep water with instructor near 1 2 3 4

* On feet for tall kids, with flotation device for short

1 = S would not complete item
2 = S attempted item slowly and fearfully, did not complete
3 = S completed item slowly, with hesitation of 30 seconds or more.
4 = S completed item quickly and spontaneously.
Appendix C
Louisville Fear Survey for Children

I am going to name some things that some kids are afraid of. You tell me or each one whether you are not afraid, a little afraid or very afraid. Let us start (circle 1, 2 or 3 for each item). Mothers please answer for your child, circling which number describes your child's response to each item.

<table>
<thead>
<tr>
<th>Not</th>
<th>A Little</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>War</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Poisoned food</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Jumping off the side of a pool into water up to your neck</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Someone in family dying</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Seeing someone wounded</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Being adopted</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Riots</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>Dying</td>
<td>1</td>
</tr>
<tr>
<td>9.</td>
<td>Hell</td>
<td>1</td>
</tr>
<tr>
<td>10.</td>
<td>Being kidnapped</td>
<td>1</td>
</tr>
<tr>
<td>11.</td>
<td>Floating out in a swimming pool with a kickboard or inner tube by yourself</td>
<td>1</td>
</tr>
<tr>
<td>12.</td>
<td>Parents getting divorced</td>
<td>1</td>
</tr>
<tr>
<td>13.</td>
<td>Having an operation</td>
<td>1</td>
</tr>
<tr>
<td>14.</td>
<td>Breaking a religious law</td>
<td>1</td>
</tr>
<tr>
<td>15.</td>
<td>Being wounded</td>
<td>1</td>
</tr>
<tr>
<td>16.</td>
<td>Being in water up to your neck in a swimming pool</td>
<td>1</td>
</tr>
<tr>
<td>17.</td>
<td>Seen naked</td>
<td>1</td>
</tr>
<tr>
<td>18.</td>
<td>Choking</td>
<td>1</td>
</tr>
<tr>
<td>19.</td>
<td>Germs</td>
<td>1</td>
</tr>
<tr>
<td>20.</td>
<td>The devil</td>
<td>1</td>
</tr>
<tr>
<td>21.</td>
<td>Going crazy</td>
<td>1</td>
</tr>
<tr>
<td>22.</td>
<td>Someone in family ill</td>
<td>1</td>
</tr>
<tr>
<td>23.</td>
<td>Seeing other children in a swimming pool</td>
<td>1</td>
</tr>
<tr>
<td>24.</td>
<td>Becoming ill</td>
<td>1</td>
</tr>
<tr>
<td>25.</td>
<td>Getting lost</td>
<td>1</td>
</tr>
<tr>
<td>26.</td>
<td>Snakes</td>
<td>1</td>
</tr>
<tr>
<td>27.</td>
<td>Dunking your head under water in a swimming pool</td>
<td>1</td>
</tr>
<tr>
<td>28.</td>
<td>Getting into a swimming pool</td>
<td>1</td>
</tr>
<tr>
<td>29.</td>
<td>Tornadoes</td>
<td>1</td>
</tr>
<tr>
<td>30.</td>
<td>Flying in an airplane</td>
<td>1</td>
</tr>
<tr>
<td>31.</td>
<td>High places</td>
<td>1</td>
</tr>
<tr>
<td>32.</td>
<td>Insects, spiders</td>
<td>1</td>
</tr>
<tr>
<td>33.</td>
<td>Putting your face in the water in a swimming pool</td>
<td>1</td>
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<td></td>
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<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>34. Deep water</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>35. Lightning</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>36. Thunder</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>37. Floating in a swimming pool, holding onto the side with your face in the water</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>38. Wading into water up to your neck, then dunking all the way under</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>39. Storms</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>40. Wading out into water up to your neck</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>41. Dark</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>42. Ghosts</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>43. Rats or mice</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>44. Being alone</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>45. Wading into water up to your neck, then putting your face in</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>46. Nightmares</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>47. Fire</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>48. Space creatures</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>49. Enclosed space</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>50. Strange room</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>51. Confined or locked up</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>52. Frogs or lizards</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>53. Getting into water at the deep end of a swimming pool with a kickboard or innertube</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>54. Letting go of the side of a swimming pool by yourself in water up to your neck</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>55. Faces at a window</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>56. Sight of blood</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>57. Strangers</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>58. Elevators</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>59. Jumping off side of pool into water over your head (with swim teacher nearby)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>60. Tests or examinations</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>61. Making mistakes</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>62. Being criticized</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>63. Social events</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>64. Kicking by yourself on a kickboard to the deep end of a swimming pool</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>65. Doctors or dentists</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>66. Reciting in class</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>67. School</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>68. In water up to your neck, pushing yourself from the side of a pool to a swim teacher</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>69. Getting a shot</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>70. Making another person angry</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>71. Going to sleep at night</td>
<td>1</td>
<td>2</td>
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<td></td>
<td>1</td>
<td>2</td>
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<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>72. Separation from parents</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>73. Parts of house</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>74. Dogs or cats</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>75. Hospitals</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>76. People with deformities</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>77. In water over your head, pushing yourself rom t - side of a pool to a swim teacher</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix D
Interest/Motivation/Efficacy Questions

1. Do you want to learn to swim?  
2. Do you want to be like your friends who swim?  
3. Do you think you can learn to swim?  
4. Do you think you can learn not to be afraid of the water?

1 = no  
2 = a tiny bit  
3 = some  
4 = pretty sure  
5 = very very sure

6. Are you still afraid of the water?  
7. How much have you overcome your fear?
SWIM STORY

I want you to tell me a story about what these two girls/boys are doing. Give your story a beginning, middle and end. (Query as necessary: What are they doing? How do they feel? How does your story end?)

What is the worst thing that could happen to these two girls/boys in the water?

Which girl/boy are you? Why?

Now tell me another story about you in the picture, a story with a beginning, middle and end.

What is the worst thing that could happen to you in this story?

(See Appendix A for scoring criteria.)
DUE-LOC

Desirable-Undesirable Events
Locus of Control Questionnaire

1. When you get better from a cold, is it usually
   a. because the medicine made you better, or
   b. (+) because you took care of yourself.

2. When you beat someone at a game, is it usually
   a. (+) because you are good at the game, or
   b. because the other person doesn't play the game well

3. When you catch a cold, is it usually
   a. because you caught it from someone else, or
   b. (-) because you did not take care of yourself?

4. When someone stops spending time with you, is it usually
   a. (-) because you did something the person did not like, or
   b. because the person is busy?

5. When you cannot understand something, is it usually
   a. because it was too hard to understand, or
   b. (-) because you have not thought about it enough?

6. When someone gives you a surprise, is it usually
   a. (+) because you need it, or
   b. because the person likes to give people surprises?

7. When you get something wrong, is that usually
   a. because no one showed you how to do it, or
   b. (-) because you were not careful enough?

8. When you are having trouble doing a puzzle, is it usually
   a. (-) because you cannot figure out where the pieces go, or
   b. because some of the pieces are missing?

9. When you are happy, are you usually happy
   a. because someone was nice to you, or
   b. (+) because you did something you enjoy?

10. When you finally get something you wanted, is it usually
    a. (+) because you kept trying for it, or
    b. because things worked out your way?

11. When you hurt yourself, is it usually
    a. because you were in an accident, or
    b. (-) because you were not careful?

12. When someone tells you they are proud of you, is it usually
    a. (+) because you did something special, or
b. because the person is feeling good?

13. When you get punished, is it usually
   a. (−) because you did something you weren't supposed to do, or
   b. because the person who punishes you is in a bad mood?

14. When you get the right answer on a difficult problem,
   is it usually
   a. because someone explained it to you, or
   b. (+) because you tried to do it yourself?

15. When you run out of money is it usually
   a. because you didn't have enough to start with, or
   b. (−) because you didn't plan ahead/save enough

16. When you solve a problem is it usually
   a. because it was an easy problem, or
   b. (+) because you did good work on it?

17. When someone beats you at a game, is that usually
   a. (−) because you aren't very good at the game, or
   b. because the other person is very good at the game?

18. When you say something smart, is it usually
   a. (+) because you thought about it a lot, or
   b. because you heard somebody smart say it?

(See Appendix A for scoring criteria.)
CONSENT FORM

Subject Consent for Participation in a Study of Childhood Fear of Swimming

University of Texas Health Science Center at San Antonio

The San Antonio Young Men's Christian Association

You and your child are invited to participate in a study of childhood fear of swimming. We hope to learn more about what causes childhood fears and we want to test two treatment techniques which may help to reduce fear of swimming in children. You and your child were selected as possible participants because your child fears swimming and is between 6 and 12 years of age.

If you decide to participate, your child will receive a course of swim instruction at the downtown YMCA, 10 sessions of 45 minutes each. Prior to the first lesson, an appointment will be made for you and your child to visit the YMCA so that information can be obtained from you and your child about your child's fear of swimming. A psychologist will interview you and your child separately to ask questions about the background and nature of your child's fear of swimming. Each interview will take about 30 minutes. After this session, you and your child will be assigned on the basis of chance, a process like flipping a coin, to one of four different treatment groups. Children will receive swimming instruction different kinds of instruction from psychologists about ways to help overcome their fear of swimming. Training will be conducted in groups in classrooms at the YMCA immediately before the same day as the child's swim lessons. There will be five sessions, lasting about 40 minutes each.

On the same day as the child's last swimming lesson, you and your child will be asked to remain at the YMCA for an additional 30 minutes in order to respond to the same questions which you were asked before the swim lessons. Again, you and your child will be interviewed separately. One month later, you will be called by telephone by a psychologist and asked how your child is doing.
Two graduate psychology students will be present at the pool during swim instruction to observe the children's behavior as they respond to swim lessons.

There is some risk that your child may become more fearful of swimming as a result of participation in this study, but that risk is very small. Swim instruction will be self-paced by your child so that he or she will not be forced to participate beyond his or her readiness. A certified lifeguard will be present and only Water Safety Instructors will conduct swim lessons. Possible benefits to you and your child include a decreased fear of swimming and an increase in life-saving water skills, but we cannot guarantee that you or your child will definitely benefit from this study.

It is not likely that training procedures will result in injury to either you or your child. In the event that either you or your child becomes upset by the swim lessons or by the training procedures conducted by the psychologist, we will be happy to provide counselling or refer you and/or your child for counselling. YMCA policies will be followed in the unlikely event of a water accident.

Any information that is obtained in connection with this study that can be identified with either you or your child will remain confidential and will be disclosed only with your permission. The results of this study will be published in scientific journals without identifying you by name.

Your decision whether or not to participate will not prejudice your future relations with either the The University of Texas Health Science Center at San Antonio or The Young Men's Christian Association. If you decide to participate, both you and your child will be free to withdraw consent and to discontinue participation at any time during the study. If your child objects to participation, he or she may leave the study at any time. If you have any additional questions, please call Ms. Wolfson (691-7311 or 684-4508), who will be happy to answer them.

You will be given a copy of this document to keep.

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE IN THIS STUDY. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE HAVING READ THE INFORMATION PROVIDED ABOVE.
<table>
<thead>
<tr>
<th><strong>Date</strong></th>
<th><strong>Signature of Parent or Guardian</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Signature of Subject 7-12 Years of Age</strong></td>
<td><strong>Signature of Witness</strong></td>
</tr>
<tr>
<td><strong>Signature of Investigator</strong></td>
<td><strong>Protocol # 801-13-223-11</strong></td>
</tr>
</tbody>
</table>
Northside Aquatic Center

Dear Parent,

A new program for children fearful of water, "Swimming Without Fear", will be offered at the same time as Northside District's Elementary School Swimming Program. "Swimming Without Fear" is part of a study of childhood fears being conducted at the University of Texas Health Science Center.

During the first 5 days of swim instruction, children in the "Swimming Without Fear" program will receive 40 minutes per day of group training before each regular swim lesson. The training will be techniques for conquering fear. At the pool, the children will be grouped together in a special class with a focus on overcoming basic fears of submerging, letting go of the side of the pool, and using flotation devices in deeper water.

Parents of children in the program will be contacted by telephone and asked to respond to questionnaires. One month after the last swim lesson, children in the program will be asked to return to the aquatics center with a parent for a follow-up assessment.

This project has been approved by the administration of the Northside Independent School District. If you have questions about the program, please contact one of the following people:
Dr. Dorothy Rogers, Director of Psychological Services, NSISD (673-4496)
Johanna Wolfson, M.A., Project Director "Swimming Without Fear" (684-4508)
George Block, Director of Northside Aquatic Center (681-4021)

Please complete the attached permission form if your child will participate in the program. Return the permission slip to your child's teacher by

PARENT PERMISSION

Place a check to the left of those items which apply to you.
My child has some fear of water. I give permission for my child to participate in the "Swimming Without Fear" program as part of the NSISD Elementary School Swim Program. I agree to be contacted to respond to questionnaires concerning my child.

My child is not afraid of water and will not participate in the "Swimming Without Fear" program.

Name________________, Phone __________.
INSTRUCTOR RATING SCALE

Child's Name _______________________

1. Initial level of swimming skill:
   1 2 3 4 5 6 7 8 9 10

2. Improvement in swimming skill:
   1 2 3 4 5 6 7 8 9 10

3. Initial fear of water:
   1 2 3 4 5 6 7 8 9 10

4. Improvement in fear of water:
   1 2 3 4 5 6 7 8 9 10

5. Present avoidance of water:
   1 2 3 4 5 6 7 8 9 10

1 = very low
5 = average
10 = very high
Appendix J
MY SPECIAL WORDS
Hi!
My name is Judy.
I have something to tell you. Can you guess from the picture?
Yes.
I am very afraid of the water.
Other children have learned not to be afraid of the water.

I want to learn how not to be afraid too.
To learn how to overcome my fear I go to a small class. We practice special words to help us overcome our fear.
Here are my special words. Can you say them out loud with me? Can you say them very softly? Can you whisper them? Can you say them silently?

I am a brave girl.
I can learn not to be afraid of the water.

I am a brave girl. I can learn not to be afraid of the water.
Here I am in the pool. When the swim teacher tells me to do something scary, I feel afraid. I practice my special words to help me. Can you say them with me? Loud? Soft? Whisper? Silent?
Each lesson I do a little more in the water. My special words are a big help. Can you say my special words with me? Loud? Soft? Whisper? Silent? Very good! You are working very hard!
I am learning how to float. I feel a little scared, so I say my special words silently, to myself. Can you say them silently too? Good! Wait until your mother hears what a good job you did.
What a good job I did! I used my special words to help me to overcome my fear. I deserve a nice treat.
When I try new things in the water, I still feel a little afraid. Can you guess what I do when I begin to get that scared feeling?

Thanks for your help. Now you try it.
Appendix K
Louisville Behavior Check List
Fear and Sensitivity Scales

Circle items which seem to describe your child.

<table>
<thead>
<tr>
<th>Item</th>
<th>Fear Scale (Male and Female)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dependent on others—unable to do things for himself.</td>
</tr>
<tr>
<td>2.</td>
<td>Tosses and turns in sleep, rolls, gets up at night, etc. (poor or restless sleeping).</td>
</tr>
<tr>
<td>3.</td>
<td>Demands special attention or fusses at bedtime.</td>
</tr>
<tr>
<td>4.</td>
<td>Says he's not as good as others; feels inferior.</td>
</tr>
<tr>
<td>5.</td>
<td>Afraid of such things as the dark, thunderstorms, domestic animals.</td>
</tr>
<tr>
<td>6.</td>
<td>Wants or demands that someone sleep with him.</td>
</tr>
<tr>
<td>7.</td>
<td>Always worrying that he or someone else is going to die.</td>
</tr>
<tr>
<td>8.</td>
<td>Fearful, constantly afraid.</td>
</tr>
<tr>
<td>9.</td>
<td>Worries all the time or feels very guilty.</td>
</tr>
<tr>
<td>10.</td>
<td>At times afraid he is going to die.</td>
</tr>
<tr>
<td>11.</td>
<td>Is afraid that he will see or hear something frightening at night.</td>
</tr>
<tr>
<td>12.</td>
<td>Complains of bad dreams or nightmares.</td>
</tr>
<tr>
<td>13.</td>
<td>Very much afraid of loud noises.</td>
</tr>
<tr>
<td>14.</td>
<td>Afraid of being in cars, or trains or airplanes, or elevators.</td>
</tr>
<tr>
<td>15.</td>
<td>Takes things in stride, not easily upset. (-)</td>
</tr>
<tr>
<td>16.</td>
<td>Becomes &quot;jittery,&quot; builds up tension, becomes &quot;wound up&quot;.</td>
</tr>
<tr>
<td>17.</td>
<td>Worries about disasters such as hurricanes, wars, fires at school, air raids.</td>
</tr>
</tbody>
</table>

Sensitivity Scale (Male and Female)

<table>
<thead>
<tr>
<th>Item</th>
<th>Sensitivity Scale (Male and Female)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.</td>
<td>Cries easily over little things.</td>
</tr>
<tr>
<td>19.</td>
<td>Says he's not as good as others; feels inferior.</td>
</tr>
<tr>
<td>20.</td>
<td>Gets very unsure when he can't have direct attention.</td>
</tr>
<tr>
<td>21.</td>
<td>Feels pain more—even from a slight injury.</td>
</tr>
<tr>
<td>22.</td>
<td>Says &quot;everyone picks on me.&quot;</td>
</tr>
<tr>
<td>23.</td>
<td>Complains &quot;Nobody loves me.&quot;</td>
</tr>
<tr>
<td>24.</td>
<td>Frequently complains of headaches.</td>
</tr>
</tbody>
</table>

Sensitivity Scale (Male)

<table>
<thead>
<tr>
<th>Item</th>
<th>Sensitivity Scale (Male)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.</td>
<td>Rushes off to do things: Impulsive.</td>
</tr>
<tr>
<td>26.</td>
<td>Is babyish; doesn't do as much for himself as other children his age.</td>
</tr>
<tr>
<td>27.</td>
<td>Chatters or interrupts conversations, (overtalking).</td>
</tr>
<tr>
<td>28.</td>
<td>Does not participate in group activities, stays in background.</td>
</tr>
<tr>
<td>29.</td>
<td>Fights against getting a shot or having a tooth filled.</td>
</tr>
<tr>
<td>30.</td>
<td>Has migraine or &quot;sick&quot; headaches.</td>
</tr>
</tbody>
</table>
| 31.  | Complains: stomach aches, dizziness, inability to catch
32. Masturbates—plays with himself.

Sensitivity Scale (Female)

25. Complains that brothers and sisters are favored.
26. Seems tired, tends to lie around, shows little interest in things.
27. Worries all the time or feels very guilty.
28. Gets very upset when she makes mistakes or is criticized.
29. Lacks self-confidence.
30. Is overweight.
31. Has threatened or attempted suicide.
32. Becomes "jittery," builds up tension, becomes "wound up."
33. Lost in her own thoughts; no one can get through to her.
34. Secure and confident—seldom worries. (-)
Red Cross Progressive Beginner Swimming Skills

1. Breath-holding, 10 sec.
2. Rhythmic breathing, 10 times
3. Prone float
4. Prone glide, 10 ft.
5. Back float
6. Back glide, 6 ft.
7. Prone glide with kick, 20 ft.
8. Back glide with kick, 20 ft.
10. Finning or sculling, 20 ft.
12. Combined stroke (back), 10 yd.
13. Changing direction
14. Turning over
15. Leveling off
16. Jump (chest-deep water)
17. Jump (deep water)
18. Front dive
19. Safety skills
20. Combined skills
VITA

Johanna Wolfson was born on January 6, 1945 in Seward, Alaska. She received a Bachelor of Arts degree in 1967 from the University of California, Berkeley, with a major in French Literature. She completed a Master of Arts degree in French Literature at California State University, San Diego in 1970. From 1974 to 1977 she attended San Diego State University, where she received a Master of Science degree in Clinical Psychology. She entered Louisiana State University in 1977.
EXAMINATION AND THESIS REPORT

Candidate: Johanna Wolfson

Major Field: Psychology

Title of Thesis: Self-talk and Exposure in the Reduction of Avoidance in Aquaphobic Children

Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

May 12, 1982