INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure complete continuity.
2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.
3. When a map, drawing or chart, etc., is part of the material being photographed, a definite method of "sectioning" the material has been followed. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.
4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.
5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.

**University
Microfilms
International**
300 N. Zeeb Road
Ann Arbor, MI 48106

1323928

BULLOCK, Deborah Dungan

INTERPERSONAL PROBLEM SOLVING SKILLS TRAINING WITH
YOUNG AGGRESSIVE CHILDREN.

The University of Arizona

M.S.

1984

University

Microfilms

International 300 N. Zeeb Road, Ann Arbor, MI 48106

INTERPERSONAL PROBLEM SOLVING SKILLS TRAINING WITH
YOUNG AGGRESSIVE CHILDREN

by

Deborah Dungan Bullock

A Thesis Submitted to the Faculty of the
DEPARTMENT OF CHILD DEVELOPMENT & FAMILY RELATIONS

In Partial Fulfillment of the Requirements
For the Degree of

MASTER OF SCIENCE
WITH A MAJOR IN HOME ECONOMICS

In the Graduate College
THE UNIVERSITY OF ARIZONA

1 9 8 3

STATEMENT BY AUTHOR

This thesis has been submitted in partial fulfillment of requirements for an advanced degree at The University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this thesis are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or part may be granted by the head of the major department or the Dean of the Graduate College when in his judgement the proposed use of this material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

SIGNED:

Delmar Morgan Bullock

APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

Carl A. Ridley

C. A. RIDLEY
Professor of Child Development
and Family Relations

8.9.83

Date

FOR
BARBARA, CATHERINE
CREOLA, & BERNADINE

ACKNOWLEDGEMENTS

I am particularly grateful to the members of my committee:

Dr. Carl Ridley, my committee chairman, for his guidance, support, friendship, and encouragement both during the data collection and throughout my Master's program;

Dr. Arthur Avery, both for his editorial expertise and for encouraging my questioning of basic assumptions; and

Dr. Juanita Boggs, who provided fresh perspectives on the evaluation and implications of the research data.

The completion of this project would not have been possible without the additional support and assistance of a number of very special friends, colleagues, and family members:

The Wylies; Patti, Mary Lu, Ruth, and especially Doug whose patience and sense of humor turned the work into "herk";

My friends and colleagues in HEC 507B; Tim Smithells, Bill Nicholl, Ingrid Sladeczek, and Dr. Leanne Lamke whose good natured and insightful critiques helped me to move more easily through the early stages of the writing.

Special thanks also go to:

Sharon Vaughn for encouraging me to reach beyond my limits;

My parents, Barbara and Levi, who fostered my enthusiasm for learning, and who encouraged my belief in my own abilities; and finally

My husband, David, without whose friendship, support, and encouragement this would have been an unbearable if not an impossible task.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vii
LIST OF ILLUSTRATIONS.	viii
ABSTRACT	ix
1. INTRODUCTION	1
2. REVIEW OF LITERATURE	6
Behavioral Characteristics of Aggressive	
Children	6
Summary	10
Problem Solving Programs	11
Academic Problem Solving Programs	13
Interpersonal Problem Solving Programs	15
Summary	22
Hypotheses	23
3. METHOD	24
Subject Selection	24
Subjects	26
Dependent Measures	27
Alternative Solutions	27
Social Interactions	31
Procedure	34
Pretreatment and Posttreatment Assessment	34
Experimental Group Training	35
Contact Control Group Training	38
4. RESULTS	39
Behavioral Interpersonal Problem Solving Test	39
Total Peer Solutions	40
Relevancy Ratio	41
Behavioral Observation Scale	43
Summary of Results	53

TABLE OF CONTENTS--Continued

	Page
5. DISCUSSION	55
Conclusions and Implications	61
Limitations and Recommendations	62
APPENDIX A: HAHNEMANN PRESCHOOL BEHAVIOR RATING SCALE	64
Scoring Instructions	68
APPENDIX B: BEHAVIORAL INTERPERSONAL PROBLEM SOLVING TEST	71
BIPS Pointers	79
BIPS Scoring Instructions	82
Relevant Solutions and Solution Categories . .	83
APPENDIX C: BEHAVIORAL OBSERVATION SCALE	86
Notes for Training	90
APPENDIX D: SAMPLE LESSONS	91
Lesson 2	91
Lesson 18	94
REFERENCE NOTES	96
REFERENCES	97

LIST OF TABLES

Table	Page
1. Means, Standard Deviations, and Adjusted Means for Total Peer Solutions	41
2. Means, Standard Deviations, and Adjusted Means for Relevancy Ratio	42
3. Peer Interactions: Pretest Distributions	45
4. Adult Interactions: Pretest Distributions	45
5. Peer Interactions: Posttest Distributions	46
6. Adult Interactions: Posttest Distributions	46
7. Positive Peer Interactions: Frequencies and Percentages	48
8. Negative Peer Interactions: Frequencies and Percentages	49
9. Positive Adult Interactions: Frequencies and Percentages	50
10. Negative Adult Interactions: Frequencies and Percentages	51

LIST OF ILLUSTRATIONS

Figure	Page
1. Relevancy Ratio	30

ABSTRACT

This study sought to determine the effectiveness of the Ridley and Vaughn Interpersonal Problem Solving program in: (a) increasing the number of alternative solutions available to aggressive young children when resolving an interpersonal problem with a peer, and (b) in changing the way these children interact with peers. Twenty-four aggressive children were assigned to either an experimental group or a contact control group. Contact control group subjects participated in story sessions while experimental group subjects participated in interpersonal problem solving skills training sessions. Subjects were assessed on the Behavioral Interpersonal Problem Solving (BIPS) test, and on the Behavior Observation Scale (BOS). While significant treatment effects were found on the BIPS, seven of the eight BOS categories yielded no significant differences. The Ridley and Vaughn program appeared: (a) effective in increasing the number of alternatives available to experimental group children, and (b) not effective in changing children's interactions as measured by the BOS.

CHAPTER 1

INTRODUCTION

A young child's social world is often limited to those persons responsible for child care. However, as children become better able to care for themselves their social world expands to include a more complicated network of interpersonal interactions with adults and peers in a variety of roles and settings (Hartup, 1979; Maccoby, 1980; Parke, 1979). Particularly when children enter the preschool setting, an increased demand is placed on their ability to interact successfully with others. This increased frequency and complexity of social interactions increases the potential for interpersonal conflicts (Gordon, 1970; Stollak, Scholom, Kallam, & Saturansky, 1973). A variety of strategies might be employed to handle these conflicts including avoidance, cooperation, force, or aggression. Each of these strategies may aid children in achieving their goals in different situations with different target persons. The greater the number of strategies available to children the more likely they are to select an appropriate solution (Parnes, 1967). Most children learn many of these strategies, usually through observation or

success/failure experiences. There are however, a number of children who have an overall restricted range of conflict management strategies that result in personal and relationship difficulties. These children exhibit a limited range of primarily aversive behaviors which include hitting, teasing, nagging, yelling, impatience, and bossiness. Repeated exhibitions of these behaviors often result in these children being identified as aggressive. When confronted with an interpersonal conflict aggressive children draw on this limited range of behaviors and tend to respond to the conflict with an aversive response. Although the occasional use of this type of response may result in successful problem resolution (i.e., the child gets what he/she wants), the repetitive and indiscriminate use of this type of response ultimately decreases the child's chances for successful problem resolution. Furthermore, the continued use of these aversive behaviors sets in motion a cycle of failure whereby the aggressive child behaves negatively, is responded to negatively, and ultimately results in the aggressive child being rejected by both teachers and peers. As a result of this rejection the aggressive child has fewer opportunities to interact with others in a positive way; and therefore may have difficulty developing the skills necessary for successful interpersonal interactions. Rather than having aggressive children continuously fail or learn by trial and error, early

intervention in a more positive interpersonal problem solving process is desirable for many. There are four steps in this type of training which appear to be necessary for effective interpersonal problem solving. First, the child must be able to identify his/her goal in the problem situation. Second, the child must have available to him/her a number of alternative solutions to interpersonal conflicts. Third, in order to select a response which is likely to be effective, the child must be able to generate possible consequences of a given response. Finally, after selecting an alternative which is likely to be effective, the child must be able to implement the solution.

There are a number of problem solving skills training programs designed for use with young children that focus on the interpersonal problem solving process. Two of the most frequently used programs have been developed by Spivack and Shure (1974), and Ridley and Vaughn (1982). Both programs have been empirically evaluated and found to be effective with young children. The Spivack and Shure format begins by teaching the children a number of prerequisite skills such as language concepts and identification of basic emotions. The remainder of the program focuses on teaching children how to think about potential alternative solutions to a problem and to predict their possible consequences.

Like the Spivack and Shure program, the Ridley and Vaughn program includes a cognitive component which teaches children how to think about potential alternative solutions and to predict their possible consequences. In addition, the Ridley and Vaughn program also includes a behavioral component where children are given an opportunity to practice implementing a number of alternative solutions to interpersonal problems. The use of a behavioral component in the Ridley and Vaughn program appears to be a significant addition to interpersonal problem solving skills programs for children as behavioral practice is important for the acquisition of any new skill (Bandura, 1971).

While no attempt has been made to evaluate the efficacy of the Ridley and Vaughn program with children identified as aggressive, several studies have demonstrated the effectiveness of the Ridley and Vaughn program with mentally retarded children and "normal" young children. These studies indicated that children trained in interpersonal problem solving skills, relative to a contact control group, demonstrated increases in empathy skills, (Ridley, Vaughn, & Wittman, 1982) the number of relevant solutions generated in a problem situation, (Ridley & Vaughn, 1982; Vaughn, Ridley, & Cox, in press), and the number of positive interactions with both peers and adults (Ridley & Vaughn, in press). The Ridley and Vaughn program has been shown to be effective with normal and mildly

retarded children in expanding children's repertoire of alternative solutions to interpersonal conflict, and in changing the way these children interact with others. However, it is not clear that the program would be effective in changing the problem solving behavior of other populations, such as aggressive children, for whom this program would appear to have optimum usefulness. In order to clarify this issue, this study attempted to evaluate the efficacy of the Ridley and Vaughn program with a population of aggressive children. Specifically this study sought to determine the effectiveness of the Ridley and Vaughn program in changing the way aggressive children interact with others, and in increasing their ability to generate alternative solutions to interpersonal problems.

CHAPTER 2

REVIEW of LITERATURE

The purpose of this chapter is to review the literature relevant to interpersonal problem solving skills training with aggressive children. This review of literature is divided into two sections. The first area focuses on the characteristics of aggressive children, including:

- (a) the identification and description of the characteristic behaviors of aggressive children, and
- (b) an exploration of the consequences of aggressive children's behavior.

The second area centers on describing those empirically evaluated problem solving programs designed for use with young children.

Behavioral Characteristics of Aggressive Children

In their attempts to identify children with behavior problems, researchers have classified young children's behavior on essentially two dimensions; an externalizing unsocial-aggressive dimension and an internalizing socially-withdrawn dimension (Crowther, Bond, & Rolf, 1981). These dimensions have been given a variety

of labels including conduct disordered and personality problems (Peterson, 1961), unsocialized aggression (Lorr & Jenkins, 1953), and hostile-aggressive and anxious-fearful (Behar & Stringfield, 1974). Regardless of the label, each of these dimensions is characterized by a common set of behaviors. Two studies typical of this literature (Kohn & Rosman, 1972; Behar & Stringfield, 1974) serve to illustrate both the differences in labels and the similarities in behavioral characteristics.

Kohn and Rosman (1972) developed two research instruments designed to assess how well a preschool child is functioning in the classroom. The first instrument, the Social Competence Scale, is designed to measure children's mastery of their environment in terms of their interpersonal relationships. The second instrument, the Symptom Checklist is an inventory of "clinically important" behaviors which can be observed in the classroom. Four hundred and seven preschool children were rated by classroom teachers using the two instruments. Factor analysis conducted on the two scales identified two major dimensions of children's behaviors: conduct problems and personality problems. Conduct problems included behaviors which were disobedient, destructive, and disruptive (e.g., hitting, yelling, being bossy). Personality problems included behaviors which indicated a lack of self confidence and social withdrawal (e.g., anxious, cries

easily).

Behar & Stringfield, (1974) developed the Preschool Behavior Checklist (PBC) which was designed to identify preschool children with behavior problems. Four hundred and ninety-six preschool children were rated by classroom teachers using the PBC. Factor analysis conducted on the scale identified three distinct dimensions: hostile-aggressive, anxious-fearful, and hyperkinetic. The behaviors which characterize the hostile-aggressive dimension (e.g., destroys others' property, is verbally abusive, hits) are very similar to the behaviors which characterize Kohn and Rosman's (1972) conduct disordered dimension.

In a review of the behavioral dimensions literature, Quay (1972) pointed out that normal children also exhibit these aggressive behaviors. The difference between children who have been identified as having a behavior problem and other children is in the frequency of the aggressive behavior. Although most children may exhibit these aggressive behaviors once or twice a week, aggressive children may display these behaviors several times per day and use these behaviors almost to the exclusion of other more positive behaviors. Whether the child's dependency on these negative behaviors is due to a lack of alternatives or an unwillingness to utilize more positive alternatives is not clear. However, a 1971 study

by Shure, Spivak, and Jaegar lends support to the previous hypothesis. Shure, et. al., found that children who were judged by their classroom teachers as less adjusted (i.e., more inhibited or impulsive) gave fewer alternatives when presented with an interpersonal problem than those children identified as adjusted.

Aggressive children's dependence on these negative behaviors has an aversive effect on their interactions with others. Several studies have indicated that children's behavior is reciprocal (Blackham, 1971; Strain, Shores, & Kerr, 1976) so that children emitting positive social behaviors receive positive responses from others. Conversely, aggressive children's negative behaviors are likely to elicit negative responses from others.

Based on observational data of preschool children Kohn (1966) found a significant correlation between the number of negative acts a child initiated towards others and the proportion of negative acts initiated toward him. This finding was supported in a 1967 study by Charlesworth and Hartup. Their observational data of preschool children (n = 70) indicated that negative behaviors were likely to result in negative responses from others.

Children who exhibit these behaviors are often rejected or are viewed as less socially desirable than children who exhibit more positive behaviors (Strain, et. al., 1976). Hartup, Glazer, and Charlesworth (1967)

examined the relationship between positive and negative behavior and social acceptance/rejection by peers. Results, based on observational data, indicated a significant correlation between negative behavior and social rejection in preschool children. This rejection by peers decreases the probability that the aggressive child will form positive relationships with peers.

This inability to establish positive peer relationships may have a negative effect on the child's future development. There appears to be a high correlation between poor peer relationships and subsequent maladjustment. The extent to which children get along with and are accepted by their peers is an important variable in adolescent delinquency (Roff, Sells, & Golden, 1972), adult mental health problems and suicide (Cowen, Pederson, Babigian, Izzo & Trost, 1973; Stengel, 1971), and military bad conduct discharges (Roff, 1961). Furthermore, behavior patterns established during the preschool years appear to be consistent over time. Kagan and Moss (1962), in a longitudinal study, found that aggressive behaviors manifested early in life (ages 3 - 6) persisted into adolescence and adulthood.

Summary

Children who behave aggressively exhibit certain negative behaviors which include hitting, teasing,

bossiness and destruction of others' property. The most observable difference between aggressive children and other children is the frequency with which aggressive children use these negative behaviors. The aggressive child seems to rely almost entirely on these negative behaviors when interacting with others. As a result of these behaviors, the aggressive child often elicits negative responses from others, is rejected by others, and is thus unable to establish positive interpersonal relationships. This inability to establish positive interpersonal relationships in children has been linked to a number of negative outcomes in later life (e.g., adult mental health problems). The apparent stability of these behaviors coupled with the negative consequences associated with aggression would seem to indicate that early intervention designed to reduce the child's dependency on these negative behaviors is desirable.

Problem Solving Programs

The problem solving approach attempts to provide the child with a process for solving conflicts with the ultimate goal being a positive change in the child's interpersonal problem solving behavior. This problem solving process has been operationalized in the form of specific skills which can be taught to young children. Four skills appear to be particularly important for

successful problem resolution (D'Zurilla & Goldfried, 1971; Spivack, Platt, & Shure, 1976). First, the child must be able to identify and define the problem. This skill requires, among others, an ability to read and interpret environmental cues (Argyle & Kendon, 1967). Second, the child must be able to generate a variety of alternative solutions to any given problem. A number of studies have indicated that the greater the number of alternatives generated, the more likely an effective solution to the problem will be found (McClure, Chinsky, & Larcen, 1978; Parnes, 1962). Third, the child must be able to identify and evaluate the possible consequences of each alternative. This ability to identify and evaluate consequences allows the child to select an alternative which is likely to be effective. Finally the child must be able to implement the solution.

Almost all problem solving programs, either directly or indirectly, include these basic components. Programs may differ however, in the manner in which they use these skills to achieve changes in interpersonal behavior. One group of programs attempts to modify children's interpersonal behavior indirectly by providing children with a process for solving academic (i.e., cognitive) problems such as puzzles and math problems. A second group of programs attempts to modify children's interpersonal behavior more directly by providing them with

a process for resolving interpersonal problems. These two types of programs will be reviewed separately.

Academic Problem Solving Programs

This type of problem solving program attempts to provide the young child with the cognitive skills for solving non-social problems. The rationale for this type of program is as follows: providing children with the cognitive skills for solving academic problems (i.e., teaching them how to think through an academic problem) should produce changes in overt behavior which will ultimately change the way the child interacts with others. Unfortunately, research does not support this rationale in that these programs have not been found to produce changes in social behavior.

Meichenbaum and Goodman (1971) designed an intervention strategy to teach verbally-mediated self control to young impulsive children. Fifteen second-grade children identified by classroom teachers as having behavior problems participated in the study. Children were matched by age and sex and randomly assigned to an experimental group, a control group, or a contact control group. Training took place during four 1/2-hour sessions over a four-week period. Trainers used modeling to teach children to talk out loud while solving a cognitive task (e.g., following instructions, picture completion).

Posttest results indicated that experimental group children, relative to control group children, improved on a series of cognitive problem solving tasks (e.g., Porteus Mazes, WISC Matching Familiar Figures Test). However, observations of impulsive (i.e., off-task or inappropriate) behavior indicated no significant differences between the experimental and control groups. Furthermore, teacher ratings indicated no significant differences between the behavior of experimental and control group subjects in terms of self control or cooperative interactions with peers.

Camp, Blom, Herbert, and van Doornick (1977) also used a "Think Aloud" approach in hopes of developing self control in young aggressive boys. Twenty-two second grade boys were identified as aggressive by classroom teachers using the Miller School Behavior Checklist. Subjects were assigned to an aggressive experimental group ($n = 12$), an aggressive control group ($n = 10$), or a normal control group ($n = 12$). Emphasis was on modeling cognitive strategies and developing answers to four questions: What is my problem? What is my plan? Am I using my plan? How did I do? Both social and non-social tasks were used in hopes of increasing the generalizability of training effects. Results indicated that experimental subjects, relative to control group subjects, showed improvement on certain cognitive measures (e.g., WISC-R Matching Familiar

Faces Test). However teacher observations indicated that there were no differences between the experimental and aggressive control group subjects in the amount of aggressive behavior exhibited.

These studies indicate that providing children with a cognitive problem solving process is effective in changing the way they solve academic problems. This type of training however, does not appear to produce changes in the child's behavior, nor does it seem to have any effect on the child's interactions with others.

Interpersonal Problem Solving Programs

Rather than focusing on problem solving in academic situations and hoping it will generalize to social problems, a number of training programs have focused on problem solving in interpersonal situations. These programs have been implemented and evaluated with both elementary school children and preschool children.

Larcen (cited in Allen, Chinskey, Larcen, Lochman, & Selinger, 1976) used an interpersonal problem solving program with non-aggressive elementary school children. Training leaders modeled exercises for problem identification, alternative thinking, consequential thinking, and elaboration of solutions in interpersonal problem solving. Results indicated that the trained children, relative to the contact control group children,

were able to generate a greater number of alternative solutions and select more effective solutions on both paper-pencil measures and in a structured real life problem situation. However, teachers using the Walker Behavioral Checklist reported no behavioral differences between the two groups. Whether the lack of behavioral changes was due to low levels of behavior problems at pre-test, insensitive measures, or the weakness of the intervention is not clear.

In a study by McClure, Chinskey, and Larcen (1978), an elaborated version of Larcen's 1976 program was evaluated. Using four experimental conditions McClure et. al. found that modeling plus role playing led to higher scores on a structured peer interaction measure. While no measure of behavior change was included, the authors concluded that modeling plus some type of role playing or practice was most likely to facilitate the transfer of skills from the training situation to real life problems. This finding may explain why training effects from previous studies, with their heavy emphasis on modeling, did not generalize to other settings.

Results from these studies would seem to indicate, first, that programs which focus on interpersonal problems are effective in teaching children the skills necessary to solve interpersonal problems. Second, it appears that modeling and role playing may facilitate the transfer of skills from the training setting to other less structured

settings.

Preschool interpersonal problem solving programs were used as early as 1942. Chittenden (1942) attempted to modify the "dominant" interpersonal behavior patterns of seventy-one preschool children. Training consisted of eleven 15-minute sessions during which the experimenter used dolls to resolve an interpersonal problem. Emphasis was placed on learning alternative responses to dominant behavior and anticipating the consequences of dominant behaviors. Based on behavioral observations, Chittenden concluded that experimental subjects were significantly less dominant and more cooperative after training than prior to training. While the results of this program are suggestive, the control group was not observed at either posttest or followup and it is not possible to firmly establish that the results were due specifically to the training.

Perhaps some of the most extensive work to date on the assessment and training of interpersonal problem solving skills with preschool children has been conducted by Spivack and Shure and their associates at the Hahnemann Community Mental Health Center (Shure & Spivack, 1978; Spivack, Platt, & Shure, 1976; Spivack & Shure, 1974). Their problem solving training program for preschoolers consists of a sequence of 46 daily lessons and activities presented by the preschool teacher. The program first

involves teaching a number of pre-requisite skills such as language concepts (e.g. same, different, or, not) and the ability to identify basic emotions (e.g. happy, sad, mad). The remainder of the program is devoted to a series of hypothetical and actual interpersonal problem situations which focus on alternative thinking, consequential thinking, and means-end thinking. The teacher uses pictures and puppets to explain these training concepts.

Recently Shure and Spivack (1980) evaluated the effectiveness of this program with impulsive (e.g. bossy, physically and verbally abusive) and inhibited (e.g. shy, withdrawn, cries easily) children. They hypothesized that after training by classroom teachers, these children would generate a greater number of alternative solutions to their interpersonal problems, and be viewed as better adjusted by their classroom teachers. Results on both a paper/pencil test and a teacher rated behavior checklist confirmed both hypotheses.

Results of this study are encouraging, although several methodological issues raise questions about the results and thus the efficacy of this program. First, classroom teachers implemented the training program and also evaluated the children's behavior at pretest and posttest. It is possible that reported changes in children's behavior were due to teacher bias. Second, teachers were encouraged to reinforce problem solving

behaviors during regular classroom activities. It is unclear whether the increases in alternative thinking and the changes in overt behaviors were due to the training program or the result of teacher reinforcement, or a combination of both.

A replication of the Shure and Spivack study by Sharp (1981) controlled for these methodological difficulties. Classroom teachers were not used as trainers and remained unaware of the actual content of the training program. Furthermore, in addition to ratings by classroom teachers, children's behaviors were also measured by independent observers blind to the content or conditions of the study. Results indicated that impulsive preschool children after training do learn to generate a greater number of alternative solutions to interpersonal problems pretest to posttest. However, Sharp found no relationship between increased alternatives and changes in behavior as reported by classroom teachers or independent observers.

Results from the Shure and Spivack study and the Sharp study are not surprising given the basic components of the Shure and Spivack program. Shure and Spivack have successfully developed an interpersonal problem solving program that teaches preschool children how to think about interpersonal problems. Training focuses on modeling and children are given little if any opportunity to practice the skills presented during training. Several researchers

have indicated that knowing an appropriate response does not ensure that the response will be used (Bryan, 1975; Giebink, Stover, & Fahl, 1968; Kohlberg, 1969). Further, the importance of practice in the acquisition of any new skill has been clearly demonstrated (Bandura, 1971).

The Ridley and Vaughn Preschool Interpersonal Problem Solving Program (1982) includes both the cognitive components of the Shure and Spivack program and an additional behavioral component. The Ridley and Vaughn program consists of fifty 15 to 20 minute lessons. These lessons focus on language concepts, perception, goal identification, empathy, alternative thinking, consequential thinking, procedural thinking, and integrating skills. During these sessions the training leader utilizes puppets to illustrate each of the concepts and children are given an opportunity to role play the problem situation. After each session two children are given an additional opportunity to role play a problem situation similar to the one presented during that day's lesson.

A recent study by Ridley and Vaughn (1982) demonstrated the effectiveness of this program in increasing the number of alternatives available to the child on both a cognitive and behavioral level, and its effectiveness in changing the way the child interacts with others. Using a pretest posttest design forty-four

preschool subjects were matched by age and sex and randomly assigned to an experimental or a contact control group. Prior to and immediately following training all subjects were assessed on both a cognitive measure, the Preschool Interpersonal Problem Solving test, and a behavioral measure, the Behavioral Interpersonal Problem Solving test. In addition, all children were observed in a naturalistic setting, to assess both the quantity and the quality of their behaviors with peers and adults. Results indicated that experimental group subjects, relative to contact control group subjects, demonstrated increases on both the cognitive and behavioral measures of interpersonal problem solving. Results of behavioral observations also indicated that experimental subjects exhibited more positive verbal and non-verbal behaviors with their peers than did control group subjects.

Although the Ridley and Vaughn program has not been evaluated with aggressive preschool children it seems likely that the program would be effective with this population for several reasons. First, the Ridley and Vaughn program contains many of the key components (e.g. alternative thinking, consequential thinking) found in programs which have been effective with aggressive children. Second, the Ridley and Vaughn program includes a behavioral component which seems to facilitate positive changes in the way children interact with their peers.

Summary

Many problem solving programs have attempted to influence positively children's interpersonal problem solving behavior by providing them with a process for resolving interpersonal conflict. Four skills appear to be essential to this process:

- (a) the ability to identify the problem,
- (b) the ability to generate a number of alternatives to any given problem,
- (c) the ability to identify and evaluate the possible consequences of each alternative, and
- (d) the ability to implement the selected alternative.

While almost all problem solving programs include these skills as components, programs may differ in the manner in which they use these skills to change interpersonal behavior. One group of programs attempts to modify children's interpersonal behavior indirectly by providing them with a process for solving academic problems. While these programs have been successful in producing changes in children's academic problem solving abilities, training effects have not generalized to produce changes in children's interpersonal problem solving behavior.

A second group of programs have attempted to modify children's interpersonal behavior more directly by providing them with a process for resolving interpersonal

conflict. Results from these studies indicate that young children can acquire the interpersonal skills identified as necessary for successful problem resolution. Only one program, however, (Ridley & Vaughn) appears to be successful in facilitating the transfer of these skills from the training setting to more naturalistic settings.

Hypotheses

It was hypothesized that children trained in interpersonal problem solving skills, relative to a contact control group, would:

- (a) generate a greater number of alternative solutions to interpersonal problems with a peer from pretest to posttest and from pretest to 3-month follow-up testing, and
- (b) engage in a greater number of positive interpersonal interactions with peers from pretest to posttest in the classroom setting.

CHAPTER 3

METHOD

Subject Selection

Subjects were selected from children enrolled in two private community preschools located in a large southwestern city. Both preschools were located in predominately middle-class neighborhoods. In order to identify aggressive children, all children between the ages of 3 years, 6 months, and 6 years, 0 months were screened by the head teacher at each school using the Hahnemann Preschool Behavior Rating Scale (Shure & Spivack, note 1). (See Appendix A) Prior to the screening, the head teacher at each school received one hour of instruction and practice administering the Hahnemann Preschool Behavior Rating Scale (HPBRS).

The HPBRS is a seven item questionnaire requiring the child to be rated on the following items:

1. persistent and nagging - e.g. nags, demands, repeatedly asks for something.
2. impatience- e.g. unable to share or take turns.
3. easily upset by peers - e.g. gets very upset when teased by peers.
4. easily upset by adults -e.g. gets very upset or over-emotional if things don't go his way.

5. prone to emotional upset - e.g. reacts with immediate anger if some other child interferes with his play.
6. dominant - e.g. bosses or threatens other children.
7. physically aggressive - e.g. hits, bites, or scratches other children.

Each of these items is rated for frequency of occurrence on a nine point scale; 1 meaning the behavior occurs much less than average, 9 meaning the behavior occurs much more than average. A total score on the HPBRS is determined by totaling the child's ratings on each of the seven items. Higher scores reflect greater amounts of negative behaviors. Scoring procedures developed by Spivack and Shure (Appendix A) indicate that children who receive no ratings of 1 or 2 and whose total scores are greater than 38 can be identified as aggressive.

The HPBRS was selected as the screening device in this study for several reasons. First, the HPBRS is one of the few behavior rating scales designed specifically for use with preschool children. Second, the limited number of items on the scale allows a large number of children to be rated in a relatively short period of time. Finally, evidence for validity of the HPBRS has been suggested in several studies. Sharp (1981) compared children's scores on the HPBRS to ratings of aggression made by independent observers using the Sharp Behavior Checklist. Sharp found a significant correlation between the two scores ($r=.469$,

$p < .001$).

Subjects

All children between the ages of 3 years 6 months and 6 years 0 months ($n=165$) were included in the screening. Of the 165 children screened, 26 children were identified as aggressive (16% of the population). Estimates of the prevalence of problem aggression in children range from 5% to 30% (Hallahan & Kaufman, 1982). Therefore the percentage identified here is not unexpected. Those children whose parents gave written consent (25) were included in the study. The children ranged in age from 3 years, 6 months to 5 years, 10 months ($\bar{X}=4$ years, 0 months). Controlling for sex, children at each school were randomly assigned to an experimental or contact control group. The experimental group contained 5 males and 1 female from Preschool I, and 5 males and 2 females from Preschool II ($n=13$). The contact control group contained 4 males and 1 female from Preschool I, and 5 males and 2 females from Preschool II ($n=12$). During training, one male in the contact control group from Preschool I moved to another school leaving 3 males in the contact control group at Preschool I ($n=11$).

Of the children who participated at pretest and posttest, 91% were available for follow-up testing (experimental group 8 males, 3 females; contact control

group 8 males, 3 females). The two children not included in the follow-up had moved from the city.

Dependent Measures

Alternative Solutions

In order to assess the child's ability to generate alternative solutions to interpersonal problems, the Behavioral Interpersonal Problem Solving Test (BIPS) (Ridley & Vaughn, 1982) was utilized. The BIPS (see Appendix B) is a modified version of the well established (Spivack & Shure, 1974) and widely utilized (Sharp, 1981; Shure, Spivack, & Jaegar, 1971) Preschool Interpersonal Problem Solving Test (Shure & Spivack, 1974). The Preschool Interpersonal Problem Solving Test (PIPS) assesses the child's ability to generate alternative solutions to hypothetical problems with a peer (e.g. wanting to play with a toy being used by another child) and with mothers (e.g. what do you do if you damage your mother's clothing). In contrast to the PIPS, the BIPS assesses the preschool child's ability to generate alternative solutions to actual interpersonal problems with a peer. By introducing an actual interpersonal problem situation, it was felt that the BIPS would more closely reflect how a child might respond in a real life situation. Furthermore, many preschool children are more willing to demonstrate how they would solve an interpersonal problem rather than verbalize

it.

In administering the BIPS both the subject and a confederate (i.e. randomly selected same age and sex child not participating in the study) enact each of the problem situations. Prior to testing, the confederate meets with the examiner in a quiet room separate from the regular classroom. At this time the examiner explains and demonstrates the role of the confederate. In this role, the confederate is given a toy and is instructed to play with it until the examiner asks for the toy to be returned. The subject is then brought into the room and is told: "We are going to play some games and (confederate's name) is going to be our helper. The idea of this game is to think of as many different ideas as you can, to get to play with these toys. Pretend that (confederate's name) has had the toy for a long time and now you would like a chance to play with it. What would you do or say so that you can play with the toy?" Other introductions (e.g. pretend this is your favorite toy) are used to maintain interest. The examiner records the child's response but does not reinforce any particular response. Responses are written on a score sheet which has a space for each of the problem situations.

If the child does not give a response or repeats a response, the examiner may use any one of the approved probes (e.g. "That was one idea, can you think of a

different idea?"). If after three probes the child is unable to generate a new alternative solution, the examiner moves on to the next problem situation. All subjects are presented with a minimum of seven problem situations. Each problem situation is presented in the same way; only the toy varies. If the subject generates a relevant alternative solution to each of the seven problem situations, additional problems are presented until the subject stops producing relevant solutions or reaches a limit of 10. Relevant solutions are those solutions which are obviously different and not merely enumerations or repetitions of a previous solution. BIPS scores and scoring procedures are the same as those used on the PIPS (Spivack & Shure, Note 1). Two scores are obtained from the BIPS. The first score is the total number of relevant solutions. Relevant solutions are credited if they fall within any of the more than 20 response categories (e.g. ask, please, trick). The second score on the BIPS is the relevancy ratio. The relevancy ratio is the total number of relevant solutions to the total number of solutions. (See Figure 1) Total solutions include relevant solutions plus no solutions (i.e. related goals, substitute goals, and irrelevant talk).

$$\frac{\text{number of relevant solutions}}{\text{total solutions} = \# \text{ of relevant solutions} + \text{no solutions}}$$

Figure 1
Relevancy Ratio

Ridley and Vaughn (1982) have established both validity and reliability on the BIPS. Validity was established by comparing scores on the PIPS and scores on the BIPS. Scores on the two tests were found to be significantly correlated ($r=.71$, $p<.001$). Test re-test reliability was established by administering the BIPS, at 10-week intervals, to 32 normal preschool children. These children ranged in age from 4 years 5 months to 5 years 0 months and did not receive any specific problem solving training. The test re-test correlation was found to be significant at the .001 level ($r=.65$).

A senior level undergraduate student familiar with both the purpose of the study and testing procedures trained two female graduate students for approximately 10 hours to administer the BIPS. Training took place two weeks prior to pretesting. Approximately five hours of training was spent becoming familiar with the scale's purpose, probing techniques, and relevant response categories. The remaining five hours were spent administering the test to four children who were not otherwise involved in the study. The two testers were blind to the purpose of the study and had no knowledge of

pretest or posttest distinctions.

Interrater reliability was established by having each graduate student administer the test and record responses while the other graduate student simultaneously observed and recorded the child's responses. The graduate students then reversed roles. Interrater reliability checks were done prior to pretesting, prior to posttesting, and prior to follow-up testing. Interrater reliability was above .85 at each check. In order to control for "tester drift", interrater reliability checks were also done between the trainer and each of the testers prior to pretesting, prior to posttesting, and prior to follow-up testing. Again, interrater reliability was above .85.

Social Interactions

The Behavioral Observation Scale, BOS, (Vaughn, 1981) was used to assess children's social interactions with others. The BOS (see Appendix C) provides information about both the quantity and the quality (e.g. positive or negative) of the child's interactions with others in the preschool environment. Behaviors are coded on three dimensions; positive/negative, verbal/non-verbal, and peer directed/adult directed. These three dimensions combine to form eight behavior categories. Following is a brief description of each category:

Positive verbal peer. Any positive or neutral verbalization directed toward an adult in which

there is some indication of recognition and or attention from the second child; e.g. praise.

Positive verbal adult. Any positive or neutral verbalization directed toward an adult in which there is some indication of recognition and or attention from the adult; e.g. requesting help.

Positive non-verbal peer. Any positive or neutral behavior directed toward another child in which there is some indication of recognition and or attention from the second child. e.g. smiling.

Positive non-verbal adult. Any positive or neutral behavior directed toward an adult in which there is some indication of recognition and or attention from the adult; e.g. sharing.

Negative verbal peer. Any negative verbalization directed toward another child in which there is some indication of recognition and or attention from the second child; e.g. name calling.

Negative verbal adult. Any negative verbalization directed toward an adult in which there is some indication of recognition and or attention from the adult; e.g. verbal defiance.

Negative non-verbal peer. Any negative behavior directed toward another child in which there is some indication of recognition and or attention from the second child involved; e.g. physical attack.

Negative non-verbal adult. Any negative behavior directed toward an adult in which there is some indication of recognition and or attention from the adult; e.g. not following directions.

Behavior samples were taken only when children were involved in "free play" as opposed to teacher directed activities. Children were observed for 15 minutes a day on three separate days. Observations were split into two 7 1/2 minute sessions; one session in the morning and one session in the afternoon. Three of the 7 1/2 minute observations took place indoors, while the remaining three

took place outdoors.

During each 7 1/2 minute observation, all behavior that was of a social nature (i.e. behavior which results in a response from others) was recorded into one of the eight categories previously defined. Behavior within these categories was recorded in the following manner:

Non-verbal Behavior. All positive and negative non-verbal behavior with peers or adults which persisted for longer than one second was timed. Each second the behavior occurred was recorded as one response. For example, a child who pulled a wagon for another child for 1 1/2 minutes would receive a positive non-verbal peer score of 90.

Verbal Behavior. All positive and negative verbal behaviors with peers and adults were recorded according to the number of sentences or phrases emitted. For example, "Johnny, please play with me?" would be recorded as one positive verbal peer.

After each 7 1/2 minute observation, all behaviors within each category were totaled.

The previously mentioned trainer also trained an additional four students to code behaviors according to the BOS. These four female students (2 graduate students, and 2 senior level undergraduate students), were blind to the purpose of the study and were not involved in any other aspect of this study. The four raters, all with previous experience working with children, were trained for approximately 18 hours in procedures for recording behavior. Approximately six hours of training were spent discussing the different categories and behaviors typical

of each category. The remaining time was spent at a university preschool observing and coding children's behavior. These children were not involved in any other way with this study.

Interrater reliability ratings were obtained by comparing total scores between two raters observing one child during the same time interval. Each rater obtained an interrater reliability check with every other rater prior to pretesting, during pretesting, prior to posttesting, and during posttesting. Interrater reliability ratings ranged from .85 to .98. The mean ratings during each period (i.e. prior to pretesting etc.) were above .90. In order to check for "tester drift", interrater reliability checks were also done between the trainer and each of the raters. Mean reliability ratings during each period were above .90.

Procedure

Pretreatment and Posttreatment Assessment

Each subject was tested individually for approximately 30 minutes on the Behavioral Interpersonal Problem Solving Test (BIPS). Testing occurred during the two week period immediately prior to training, the two week period immediately following training, and again three months after training was completed. In addition, the behaviors of all subjects were observed and coded to assess

the quantity and quality of behavior exhibited by the target child towards peers and adults in the preschool setting. These behavior observations took place during the two-week period immediately prior to training and again during the two-week period immediately following training.

After pretesting, experimental group subjects participated in interpersonal problem solving skills training sessions while contact control group subjects participated in story-telling sessions. Both the experimental and contact control group subjects were removed from their regular classrooms and brought to nearby rooms for their respective training programs. Parents and teachers were not informed as to which children were in the experimental group or which children were in the contact control group.

Experimental Group Training

The Ridley and Vaughn Interpersonal Problem Solving Skills Training Program (Ridley & Vaughn, 1982) was conducted for 20 minutes each weekday during a ten-week period for a total to 50 sessions. (total training time 16 2/3 hours). The Ridley and Vaughn program contains 50 lessons (See Appendix D for sample lessons). Lessons represent each of the 8 core components of the interpersonal program. A brief description of each component follows:

1. Language concepts (3 lessons). The purpose of these lessons is to teach children the meaning of certain fundamental language concepts (e.g. same/different) which will later be linked to concepts specific to the problems solving process (e.g. alternative thinking).
2. Perception (7 lessons). The purpose of these lessons is to teach children similarities and differences in others (e.g. we do not all feel the same way about the same things). This appreciation of the similarities and differences in others is a beginning step to empathy.
3. Goal identification (5 lessons). The purpose of these lessons is to teach children to identify what they want or, in the case of a problem situation, what the problem is.
4. Empathy (8 lessons). The purpose of these lessons is to teach the child to take the role of another. Four empathy skills are taught in a sequential order. These four skills are: identifying basic emotional states (e.g. happy sad, mad, afraid); identifying emotions in self; identifying emotions in others; match in affective states.
5. Alternative thinking (8 lessons). The purpose of these lessons is to teach a cognitive strategy for generating a variety of potential solutions to a problem situation (e.g. one way to solve the problem is to hit, another way to solve the problem is to share).
6. Consequential thinking (6 lessons). The purpose of these lessons is to teach a cognitive strategy for predicting the likely outcome or outcomes for any selected alternative to a problem situation (e.g. what might happen next if you grab the toy away).
7. Procedural thinking (6 lessons). The purpose of these lessons is to teach a cognitive strategy for getting from the selected means of solving the problem to the desired goal (e.g. the child actually role plays how a particular alternative will be enacted).
8. Integrating skills (7 lessons). The purpose of these lessons is to incorporate all of the components of the interpersonal problem solving

approach into a single process. For example, the child identifies the problem, generates potential solutions, evaluates the solutions, selects one, and implements it.

In a typical session, the program leader used puppets to demonstrate the skill (e.g. empathy) being taught in that day's lesson. Children were encouraged to interact with the puppets and the training leader. After each session, all but two children were returned to their regular classrooms. The remaining two children were then given an opportunity to role play an interpersonal problem situation using the skills presented in that day's lesson.

Two female students (one senior level undergraduate, who also served as the trainer on the BIPS and the BOS, and one graduate), both with experience working with young children, served as the experimental and contact control group training leaders. One student served as the experimental and contact control group program leader at Preschool I, while the other served as the experimental and contact control group program leader at Preschool II. The two training group leaders met once a week with the program's authors to discuss the following week's lessons. During these meetings, which lasted for approximately 90 minutes, the training leaders demonstrated the lessons. In order to insure that the training program was being implemented in the same way at each school, the program's authors observed four randomly selected sessions at each school., and found that leaders were meeting the

program's objectives in the same manner.

Contact Control Group Training

Subjects met with their group leader for the same amount of time the experimental group subjects (50 20-minute sessions over a 10-week period). During these sessions, training leaders used puppets to tell the children a story. Stories were selected based on children's interests.

CHAPTER 4

RESULTS

The purpose of this study was to determine the effectiveness of the Ridley and Vaughn Interpersonal Problem Solving Skills Training Program with a population of young aggressive children. It was hypothesized that the experimental group, relative to the contact control group, would: (a) generate a greater number of alternative solutions to interpersonal problems with a peer from pretest to posttest and from pretest to three-month follow-up testing, and (b) engage in a greater number of positive interpersonal interactions with a peer from pretest to posttest. Results were analyzed using analysis of variance techniques for the Behavioral Interpersonal Problem Solving Test (BIPS) data, and nonparametric techniques for the Behavioral Observation Scale (BOS) data.

Behavioral Interpersonal Problem Solving Test

Two scores are obtained from the BIPS data: (a) total peer solutions; i.e., the total number of relevant solutions given to problem situations, and (b) relevancy

ratio, i.e., the ratio of the number of relevant solutions to the total number of solutions. Two-way analyses of covariance (ANCOVA) were computed on each component of the BIPS to assess the effects of treatment, sex, and treatment by sex interaction on each of the two groups.

Total Peer Solutions

Means, adjusted means and standard deviations for total peer solutions are presented in Table 1. Using the pretest scores as the covariate and the posttest scores as the dependent variable ANCOVA results indicated a significant effect for treatment ($F=10.32$, $p<.005$); no significant sex effect ($F=1.96$, N.S.); and no significant treatment by sex interaction effect ($F=0.06$, N.S.). Using the pretest scores as the covariate and the follow-up scores as the dependent variable, results indicated a significant treatment effect ($F=7.20$, $p<.02$); no significant sex effect ($F=0.03$, N.S.); and no treatment by sex interaction effect ($F=.10$, N.S.). In essence, results indicated that the experimental group, relative to the contact control group, demonstrated a significant increase in generating relevant alternative solutions to interpersonal problems at both posttesting and follow-up testing.

Table 1. Means, Standard Deviations, and Adjusted Means
for Total Peer Solutions

	Pretest	Posttest	Follow-up
Experimental Group			
Mean	3.92	5.08	5.73
S.D.	1.75	1.18	2.10
Adjusted Mean		5.00	5.43
Contact Control Group			
Mean	3.36	3.27	3.27
S.D.	1.75	1.62	1.79
Adjusted Mean		3.36	3.57

Relevancy Ratio

The means, adjusted means, and the standard deviations for relevancy ratio are presented in Table 2.

**Table 2. Means, Standard Deviations, and Adjusted Means
for Relevancy Ratio**

	Pretest	Posttest	Follow-up
Experimental Group			
Mean	89.08	96.54	98.18
S.D.	22.48	6.61	6.03
Adjusted Mean		96.23	98.66
Contact Control Group			
Mean	89.36	79.55	76.45
S.D.	20.11	19.11	29.16
Adjusted Mean		79.91	75.98

ANCOVA results indicated a significant treatment effect at posttest on relevancy ratio ($F=9.70$, $p<.01$). However, no significant sex effect ($F=4.14$, N.S.); or treatment by sex interaction effect ($F=2.07$, N.S.); was found. ANCOVA results at follow-up also indicated a significant treatment effect ($F=6.23$, $p<.02$); no significant sex effect ($F=0.92$, N.S.); and no treatment by sex interaction effect ($F=1.72$, N.S.). Thus, results indicated that the experimental group, relative to the contact control group, demonstrated a significant increase in relevancy ratio at both posttesting and follow-up testing.

Behavioral Observation Scale

In order to study the effects of training on behavior in the preschool setting, subjects were assessed on the Behavior Observation Scale (BOS). The BOS consists of eight categories: (1) Positive Verbal Peer interaction, (2) Negative Verbal Peer interaction, (3) Positive Nonverbal Peer interaction, (4) Negative Nonverbal Peer interaction, (5) Positive Verbal Adult interaction, (6) Negative Verbal Adult interaction, (7) Positive Nonverbal Adult interaction, and (8) Negative Nonverbal Adult interaction. A detailed description of each of these categories is presented in Chapter 3.

Since the parametric assumptions of homogeneity of variance and normality of distribution could not be met for

the data samples from this population, nonparametric methods were used to answer the following research questions:

1. Were the experimental and control groups comparable, or were there significant differences between their score distributions prior to treatment?
2. Were the experimental and control groups comparable at posttest or were there significant differences between their score distributions?
3. Were there any significant within group differences in score distributions pretest to posttest for both groups?

The Mann-Whitney U test, a non-parametric analog to the t-test for independent samples, was used to answer the first two questions above; chi-square tests were used to determine whether any within-group differences in score distributions existed pretest to posttest.

At pretest, the Mann-Whitney U test was utilized to determine if there was a significant difference between the distributions of the scores of the experimental and control groups on the eight categories of interaction on the BOS (see Tables 3-6).

Table 3. Peer Interactions: Pretest Distributions

=====				
	Positive		Negative	
	Experimental	Control	Experimental	Control

Verbal				
n	12	11	12	11
R	151	125	160.5	116
U	59		49.5	
Nonverbal				
n	12	11	12	11
R	144	132	170.5	95.5
U	64		39.5	
=====				

Table 4. Adult Interactions: Pretest Distributions

=====				
	Positive		Negative	
	Experimental	Control	Experimental	Control

Verbal				
n	12	11	12	11
R	107	169	160.5	115
U	29 (p < 0.25)		49.5	
Nonverbal				
n	12	11	12	11
R	134.5	141.5	146.5	129.5
U	56.5		63.5	
=====				

Table 5. Peer Interactions: Posttest Distributions

=====				
	Positive		Negative	
	Experimental	Control	Experimental	Control

Verbal				
n	12	11	12	11
R	168	108	159	117
U	42		51	
Nonverbal				
n	12	11	12	11
R	136	140	168.5	107.5
U	58		41.5	
=====				

Table 6. Adult Interactions: Posttest Distributions

=====				
	Positive		Negative	
	Experimental	Control	Experimental	Control

Verbal				
n	12	11	12	11
R	118.5	157.5	134.5	141.5
U	40.5		56.5	
Nonverbal				
n	12	11	12	11
R	135.5	140.5	152	124
U	57.5 ~		58	
=====				

It was found on all but the Positive Verbal Adult interaction category of the BOS, that the values of U at pretest fell between 39 and 64. A value for U of 38 or less would have been significant at the .05 level for each comparison. Since none of these seven comparisons were significant, the null hypothesis (i.e., that the control group represented the same population distribution as the experimental group on these seven variables) was not rejected. However, a value for U of 29, which was significant beyond the .025 level, was found on the Positive Verbal Adult interaction category. This indicated that the control group and experimental group differed significantly in their distributions of pretest scores on this variable. The high value of R for the control group indicated that the pretest scores for this group were significantly higher than those of the experimental group.

The Mann-Whitney U test was also utilized to test whether there was a significant difference between the distributions of the scores of the experimental and control groups on the eight interaction categories of the BOS at posttest (see Tables 7-10).

Table 7. Positive Peer Interactions: Frequencies and Percentages

=====				
	Experimental		Control	
	Pretest	Posttest	Pretest	Posttest

Verbal				
High	4 (33.2%)	5 (41.7%)	2 (18.2%)	2 (18.2%)
Medium	5 (41.7%)	6 (50.0%)	6 (54.5%)	8 (72.7%)
Low	3 (25.0%)	1 (8.3%)	3 (27.3%)	1 (9.1%)
	$\chi^2 = 1.78$		$\chi^2 = 2.00$	
Nonverbal				
High	5 (41.7%)	1 (8.3%)	4 (36.4%)	1 (9.1%)
Medium	3 (25.0%)	1 (8.3%)	5 (45.4%)	2 (18.2%)
Low	4 (33.3%)	10 (83.3%)	2 (18.2%)	8 (72.7%)
	$\chi^2 = 13.67$		$\chi^2 = 22.05$	
=====				

Table 8. Negative Peer Interactions: Frequencies and Percentages

=====					
	Experimental		Control		
	Pretest	Posttest	Pretest	Posttest	

Verbal					
High	0 (0.0%)	0 (0.0%)	1 (9.1%)	0 (0.0%)	
Medium	10 (83.3%)	9 (75.0%)	6 (54.5%)	7 (63.6%)	
Low	2 (16.7%)	3 (25.0%)	4 (36.4%)	4 (36.4%)	
	$\chi^2 = 0.60$		$\chi^2 = 1.17$		
Nonverbal					
High	2 (16.7%)	1 (8.3%)	1 (9.1%)	0 (0.0%)	
Medium	6 (50.0%)	7 (58.3%)	3 (27.3%)	5 (45.5%)	
Low	4 (33.3%)	4 (33.3%)	7 (63.6%)	6 (54.5%)	
	$\chi^2 = 0.67$		$\chi^2 = 2.48$		

Table 9. Positive Adult Interactions: Frequencies and Percentages

=====						
Experimental				Control		
	Pretest		Posttest		Pretest	Posttest

Verbal						
High	1	(8.3%)	1	(8.3%)	1	(9.1%) 2 (18.2%)
Medium	6	(50.0%)	7	(58.3%)	6	(54.5%) 5 (45.4%)
Low	5	(41.7%)	4	(33.3%)	4	(36.4%) 4 (36.4%)
	$\chi^2 = 0.37$				$\chi^2 = 1.17$	
Nonverbal						
High	1	(8.3%)	0	(0.0%)	3	(27.3%) 1 (9.1%)
Medium	6	(50.0%)	7	(58.3%)	3	(27.3%) 4 (36.4%)
Low	5	(41.7%)	5	(41.7%)	5	(45.4%) 6 (54.5%)
	$\chi^2 = 1.17$				$\chi^2 = 1.87$	

Table 10. Negative Adult Interactions: Frequencies and Percentages

=====				
	Experimental		Control	
	Pretest	Posttest	Pretest	Posttest

Verbal				
High	1 (8.3%)	1 (8.3%)	0 (0.0%)	1 (9.1%)
Medium	6 (50.0%)	4 (33.3%)	4 (36.4%)	5 (45.4%)
Low	5 (41.7%)	7 (58.3%)	7 (63.6%)	5 (54.5%)
	$\chi^2 = 1.47$		$\chi^2 = 0.81$	
Nonverbal				
High	0 (0.0%)	1 (8.3%)	0 (0.0%)	1 (9.1%)
Medium	6 (50.0%)	5 (41.7%)	5 (45.4%)	4 (36.4%)
Low	6 (50.0%)	6 (50.0%)	6 (54.5%)	6 (54.5%)
	$\chi^2 = 0.17$		$\chi^2 = 0.20$	

On examination of the posttest distributions, it was found on all eight interaction categories of the BOS, that the values of U fell between 40.5 and 58. Again, a value for U of 38 or less would have been significant at the .05 level for each comparison. None of the eight comparisons reached the critical level for values of U. Therefore, the experimental and control groups were comparable in terms of their score distributions prior to treatment (except for a significant difference in score distributions between groups for the Positive Verbal Adult interaction category), and at posttesting. These results indicated that the two sets of sample data are from the same population distribution.

Chi-square tests for independent samples were utilized to determine if there were any significant group differences in score distributions on each of the eight interaction categories of the BOS. The mean, median, and mode for pretest and posttest scores in each interaction category were calculated. Based on this information, pretest and posttest scores were assigned to a high, medium, or low score range. Frequencies and percentages within each score range are presented in Tables 11-18.

On seven of the eight interaction categories of the BOS, no significant within group differences in score distributions were found pretest to posttest. The results indicated that there were minor, though not significant,

changes in the positive and negative interaction behaviors of the aggressive children in both the experimental and the control group. For example, both groups increased their positive verbal interactions with a peer. However, in the Positive Nonverbal Peer interaction category, significant differences in score distributions pretest to posttest were found for both the experimental ($X = 13.67$, $p < .01$) and control group ($X = 22.05$, $p < .001$). These results indicated that a major percentage of subjects in each group reduced the frequency of their positive nonverbal peer interactions from pretest to posttest.

Summary of Results

No significant differences were found to exist between the experimental and control groups prior to treatment on the two components of the BIPS (total peer solutions and relevancy ratio). Using the pretest scores as the covariate, significant treatment effects were found at posttest and follow-up testing on both components of the BIPS. No significant sex or group by sex interaction effects were found. The initial hypothesis that the experimental group, relative to the contact control group, would generate significantly more relevant alternative solutions to interpersonal problems with a peer from pretest to posttest and from pretest to three-month follow-up testing was confirmed.

Non-parametric statistics were used to analyze the score distributions for the eight BOS interaction categories. With the exception of a pretest difference between groups on positive verbal adult interactions, no significant differences in score distributions existed between the two groups on seven of the eight BOS categories prior to treatment and at posttesting.

Individual scores within each BOS category were assigned into a high, medium, or low score range. No significant within-group differences in score distributions were found pretest to posttest on seven of the eight BOS categories. Significant differences were found for both groups on the Positive Nonverbal Peer interaction category, with both groups decreasing in positive nonverbal peer interactions. The initial hypothesis that after training the experimental group, relative to the contact control group, would engage in a greater number of positive interactions with peers was not confirmed.

CHAPTER 5

DISCUSSION

It was hypothesized that aggressive children trained in interpersonal problem solving skills, relative to an untrained group of children from the same population, would be able to generate a significantly greater number of alternative solutions to interpersonal problems with a peer. Results from this study indicated a significant treatment effect at both posttesting and follow-up testing on the BIPS, a measure of children's ability to generate alternative solutions to interpersonal problems with a peer. These results lend support to previous findings by Ridley and Vaughn (1982), Spivack and Shure (1980) and Sharp (1981), that young children are able to generate a significantly increased number of alternative solutions after training in interpersonal problem solving skills.

Although there are a number of critical intervening variables (e.g., consequential thinking), there appears to be a strong positive relationship between the ability to generate alternative solutions and successful problem resolution (Shure, Spivack & Jaegar, 1971; Parnes, 1967). The more alternatives available to children confronted with

an interpersonal conflict the more likely they are to successfully resolve the conflict by selecting an effective solution. The nature of the relationship between problem solving skills training, the ability to generate alternative solutions, and successful problem resolution is an intricate and complex one. However, findings from this study and others provide initial insights into the nature of this relationship. Results from this study and others (e.g., Spivack & Shure, 1980) indicate that children trained in interpersonal problem solving skills are not only able to generate a greater number of alternatives, but are also less likely than control group children to engage in irrelevant talk which is reflected in their higher relevancy ratio scores. There are several possible explanations for this finding.

First, experimental group children may have engaged in less irrelevant talk during testing simply as a function of retaining a greater number of alternative solutions. These children had the "answers" and it simply wasn't necessary to engage in irrelevant talk. However, a closer look at the BIPS protocols indicated that even when experimental group children did not produce a relevant response they were not likely to engage in irrelevant talk. Instead, these children made requests for additional information or for more time to think about the problem.

A second explanation for this increase in relevancy

ratio might be that after training experimental group children were more willing than control group children, to persist or stay with the problem solving task. By providing children with additional alternatives, an opportunity to practice using the alternatives, and success experiences within the training setting, problem solving skills training may encourage children to persist in the problem solving task. While it is not clear how this increase in "persistence" occurs there is tentative evidence to suggest that it may be linked to self concept. Using a population of normal children Vaughn, Ridley, and Kranichfeld (Note 2) found that children trained in interpersonal problem solving skills had a more positive self concept than a comparable group of untrained children. It is possible that children with positive self concepts are more confident in their problem solving abilities and thus are more likely to persist in the problem solving task. This willingness to persist may ultimately increase the potential for successful problem resolution.

While children trained in interpersonal problem solving skills, relative to controls, were able to generate a greater number of alternative solutions and a greater ratio of relevant to irrelevant solutions to interpersonal problems, training did not appear to influence actual interpersonal behavior in the preschool setting as measured by the BOS. When interpreting this finding it is important

to keep in mind that the goal of the Ridley and Vaughn program is not to produce changes in children's interactions with others, but rather to provide children with a process for competently resolving interpersonal problems. Based on a review of the literature, however, it had been expected that the Ridley and Vaughn program would affect children's behavior both within problem situations, and across a wider range of interpersonal interactions. There are several possible explanations for the apparent lack of behavioral changes.

First, while Ridley and Vaughn (1982) found the 10 week interval between pretest and posttest sufficient to produce changes in normal children's behavior, it may have been insufficient to produce changes in aggressive children's behavior. The Ridley and Vaughn study provided normal children, (i.e., those children with a predominately positive pattern of interacting with others) with a process for resolving conflict. This study, however, attempted to take children with a primarily negative style of interaction (i.e., aggressive) and offer them an alternative process for resolving conflict. Several studies (e.g., Steed, 1971; Hagerman, 1982) have suggested that changes in behavior follow a pattern whereby negative behaviors appear to increase, plateau at their original levels, and then gradually decline. It is possible that posttesting on the BOS occurred during the plateau stage of

this pattern, thus suggesting that there were no changes in behavior.

Second, initial changes in behavior are likely to be small and may go unnoticed by teachers and peers. In addition, teacher's and peer's negative perceptions of aggressive children may be so firmly entrenched that initial attempts at more positive behaviors, even if recognized, may not be believed or reinforced. Without reinforcement for these newly attempted behaviors it is likely that these children became discouraged and tended to revert back to their former unsatisfactory, though stable, patterns of behavior. Therefore, a third explanation may be that focusing the training program on children's behavior alone was necessary but insufficient to elicit the desired changes. From a systems perspective, training these children to respond differently to problem situations also necessitates training their teachers, peer, and families to be aware: (a) of the likelihood of changes, and (b) of how to reinforce changes as they occur, especially in the initial stages.

Finally, it is possible that the Ridley and Vaughn program was effective in changing children's interpersonal problem solving behavior in a problem situation, but these behaviors did not generalize to non-problem situations. The BOS does not distinguish between problem and non-problem situations, but only categorizes children's interactions in

free play situations. Furthermore, the BOS does not provide a means of measuring interpersonal problem solving behavior (e.g., generating alternatives), but only generally categorizes interpersonal behavior as either positive or negative. It would seem important to assess children's interpersonal problem solving behavior in a naturalistic setting before attempting to assess interpersonal behavior at a more general level.

Two other findings of note emerged from the BOS data. First, equivalence of pretest score distributions for both groups had been expected on all eight interaction categories of the BOS. However, a significant difference between groups emerged on the Positive Verbal Adult interaction category, with children in the control group engaging in a greater number of positive verbal interactions with an adult. While experimental and control group subjects were matched on age and sex, there may be other unaccounted for variables which might have contributed to this pretest difference. For example, perhaps control group children had been enrolled in school for a longer period of time making them more comfortable interacting with adults in the preschool setting.

It was also noted at posttest that a major percentage of children in both the experimental and control groups reduced the frequency of their Positive Nonverbal Peer interactions from pretest to posttest. Normal

developmental increases in children's verbal abilities in conjunction with an emphasis on language skills at both preschools may have contributed to this decrease in positive nonverbal behavior. Perhaps as children become comfortable with their peers and more verbally skillful there is less of a need to engage in nonverbal behaviors.

Conclusions and Implications

Findings from this study indicate that the Ridley and Vaughn program is effective in increasing young aggressive children's ability to generate relevant alternative solutions to interpersonal problems with a peer in a testing situation. There was no evidence to suggest that the program was effective in producing changes in interpersonal behavior on a more general level. Future research might give consideration to the development of instruments which measure children's problem solving behavior in a naturalistic setting.

The behavior observation data from this study suggests that the child's environment, particularly the preschool setting, is critical in producing changes in interpersonal behavior. While difficult from a methodological perspective, programs which take into account the child's school environment may be more likely to influence interpersonal behavior. For example, training programs implemented by the classroom teacher, who can

reinforce positive changes in behavior, are likely to be more effective than programs implemented outside of the regular classroom. Researchers may also want to give consideration to training parents in both problem solving skills and reinforcement techniques.

Limitations and Recommendations

At various times during this study it became clear that there were important modifications which would have improved and enhanced the existing research design. The research design could have been modified to include:

1. Separate group leaders for the experimental and contact control groups, to control for possible leader bias.
2. An additional, non-contact control group to control for Hawthorne effects.
3. Increased sample size to provide additional data, and to increase statistical power in the analysis of data.
4. Time series analysis to detect any patterns of behavior change.
5. Follow-up data on the BOS could have been collected to determine if any behavior changes occurred pretest to follow-up, and posttest to follow-up.
6. Additional demographic data to assure that the two groups were as closely matched as possible.

Despite these limitations, results from this study are encouraging. It appears that aggressive children can learn to generate alternative solutions to interpersonal problems, perhaps ultimately increasing their changes for

successful problems resolution. The findings from this study also highlight the need for additional research. Future research might address: (a) the influence of each of the problem-solving components (e.g., goal identification, cue sensitivity) on aggressive children's interpersonal interactions, (b) the effects of training teachers and/or parents in interpersonal problem solving skills, on children's, teacher's, and parent's behaviors, (c) the effect of interpersonal problem solving skills training on other outcome variables such as locus of control, self concept, or empathy, and the effect of these variables on successful problem resolution.

APPENDIX A

HAHNEMANN PRESCHOOL BEHAVIOR RATING SCALE (HPBRs)
Myrna Shure, Ph.D. and George Spivack, Ph.D.
Hahnemann Medical College and Hospital

CHILD'S NAME _____

DATE OF RATING _____

YOUR NAME _____

Purpose: The purpose of this scale is to identify two groups of children; those that exhibit shy and withdrawn behaviors and those that exhibit aggressive and impulsive behaviors.

Directions: For each child in your class, do the following:

1. Read each of the items listed below.
2. Think of how the child's behavior you are rating compares with a same age and sex child on each of the seven items.
3. Select a rating from one to nine for each of the seven items.

How to Select a Rating: Children exhibit a wide range of behaviors from very withdrawn (1,2) to very aggressive (8,9). Thinking of the students in your class, score the most aggressive children 8,9 and the most withdrawn children 1,2. It is not uncommon for some children to score high on some items and low on others. Your thoughtful consideration in assisting us in identifying groups of aggressive and withdrawn children is appreciated.

"1" or "2" - If the child displays the behavior less than he should because he is too inhibited, timid, or fearful. These ratings would be applied to children who primarily exhibit shy and withdrawn behavior and have tendencies to be nonassertive.

"3" or "4" - These categories refer to well adjusted child. "3" applies to the children that seem most well adjusted in the classroom. "4" refers to children who are well adjusted and only rarely evidence behavioral problems.

"5" - If the child displays the behavior being rated about as often as the average child of the same age and sex.

"6", "7", "8", or "9" - If the child displays the behavior being rated more frequently than the average child, ranging from "6" (somewhat more) to "9" (very, very much more). Higher scores reflect tendencies to be aggressive, emotional, and/or impulsive.

SCALE

ITEMS:

1. _____ Persistent and nagging: persists when told he cannot have something. Nags, demands, repeatedly asks for something.
2. _____ Easily upset by peers: examples; when teased, pushed, etc.
3. _____ Easily upset by adults: gets very upset or overemotional if things don't go his way.
4. _____ Dominant: bosses, threatens, dominates other children.
5. _____ Physically aggressive: hits, bites, scratches, pushes or in other ways hurts or attacks other children in a free play situation.
6. _____ Prone to emotional upsets: reacts with immediate anger or upset if some other child interferes with his play or takes something that is his.
7. _____ Impatience: unable to wait proper time or share; grabs toys; unable to take turns. (Please note: a high score shows more grabbing, and less ability to share and take turns.

Scoring Instructions

The scoring procedures for this scale were developed by Spivack and Shure (note 1). The Hahnemann consists of seven items which have been factor analyzed into three factors; impatience (items 1 and 7), emotionality (items 2, 3, and 6), and aggression (items 4 and 5). Each of the scales seven items are rated separately on a scale of 1 through 9. Based on these ratings, children are assigned to one of three groups: inhibited, adjusted, or impulsive.

Inhibited Group. If a child receives a score of 1 or 2 on all items within a common factor, e.g. impatience, he is placed into the inhibited category regardless of his other scores.

Adjusted Group. If a child receives no rating of 1 or 2, and his ratings on all 7 items do not exceed a total of 37, he is placed into the adjusted category.

Impulsive Group. If a child receives no ratings of 1 or 2, and his ratings on all seven items equals 38 or more, he is placed into the

impulsive category.

Spivack and Shure note that some children's ratings may not fall neatly into one of these categories. For example, if a child has a score of 1 or 2 on only one item, and at least five other items are rated within the adjusted range (i.e., a 3, 4, or 5), the child is placed into the adjusted category. Furthermore, if a child receives ratings on four or more items outside of the adjusted range, some inhibited and some impulsive, he is classified into that category with the majority of items rated. For example one child's scale was:

<u>Item</u>	<u>Rating</u>
1	2
2	8
3	2
4	7
5	6
6	6
7	5

This child had six items outside of the adjusted range. His inhibited ratings did not fall into the same factor. Since the majority of his aberrant ratings fell into the impulsive range (6-9), this child was placed into

the impulsive behavior classification.

APPENDIX B

BEHAVIORAL PRESCHOOL INTERPERSONAL
PROBLEM SOLVING TEST

Subject Number _____

School _____

Tester _____

Date _____

pre

post

follow-up

1. Doll (female subject)

Truck (male subject)

Initial Response:

Probe:

Probe:

Probe:

2. Markers and paper

Initial Response:

Probe:

Probe:

Probe:

3. Play dough

Initial Response:

Probe:

Probe:

Probe:

4. Puppet

Initial Response:

Probe

Probe:

Probe:

5. Drum

Initial Response:

Probe:

Probe:

Probe:

6. Puzzle

Initial Response:

Probe:

Probe:

Probe:

7. Ball

Initial Response:

Probe:

Probe:

Probe:

Item 8 should be administered only if seven different alternative solutions have been offered. If on Item 8 another new solution is offered, administer Item 9. If on Item 9 another new solution is offered, administer Item 10. Stop after Item 10 even if all new ideas have been offered.

8. Pegboard

Initial Response:

Probe:

Probe:

Probe:

9. Telephone

Initial Response:

Probe:

Probe:

Probe:

10. Blocks

Initial Response:

Probe:

Probe:

Probe:

BIPS Pointers

1. Have your testing material set up before you go to class to pick up the children. You must be prepared to be in positive personal contact with the subject immediately.
2. Introduce yourself and distribute stickers.
3. "We're going to play a game so that you can help us understand what kids your age can do to get a chance to play with toys."

To subject: "You are going to play the game with me. I'm going to give a toy to _____ to play with and we're going to pretend that you want it. You're going to think of lots of new and different ideas about how you can get a chance to play with the toy. Every time you think of a new way to get the toy you can play with it for a few minutes."

To helper: "You are going to be my helper, and that means that you get to play with the toys I give you. But you aren't going to give me any ideas, o.k.?" "Now, who's going to give me lots of ideas about how to get toys? And who is going to play with the toys but not give any ideas?" (Give lots of reinforcement for correct answers).

4. "I'm going to be writing things down sometimes as we play because that's what I do in this game, but I'll still be listening and playing the game too."
5. "O.K., let's try this toy first. I'm going to give it to _____ to play with." Address subject: "Who has the toy? Who wants the toy?" Again, lots of reinforcement for correct answers.
6. INITIAL PROBES What can you do so you can get a chance to play with the toy?
Show me what you can do so you can get the toy.
Show me what you can do so you can get the toy from _____. What can you do or say so you can get the toy from .
7. SUBSEQUENT PROBES (Use these as soon as you get the first valid response, or after 2 or 3 toys have produced no valid response).

What is a different way to get a chance to play with

the toy?

Tell me another idea about how you could get to play with the toy.

Can you give me a new idea?

Show me a new way to get the toy.

What is another thing you could do?

What is another thing you could say?

The first idea you had was to _____; the second thing we said was you could _____; what's a third idea (hold up fingers as you count).

What else could you try?

8. Reinforce as soon as you get a correct answer. "That's exactly right!! You thought of one way that you could get a chance to play with the toy, so I'm going to let you have it for a while. Boy, you really know how to play this game don't you?" Give the toy to the child.
9. When you're not getting valid responses, alarm bells should start ringing. What's going on in that child's head?

Does the child understand what you are asking? if you are getting nonscoreable answers, he may not understand what you want. You must communicate the category of answers you are looking for without giving examples, and you must explain to him why his answers are wrong. For example, the child might respond, "I could say thank you." You respond "That's what you say if you already have the toy. In this game we want to know what you can do to get the toy." To a repetition, "We already said one idea is to _____. The idea of this game is to think of lots of new and different ideas. What's different from _____.

Is the child shy, uncomfortable, or uninvolved? Make the whole testing process enjoyable for the child, make the story fun to listen to, interest the child in the toy. For example, "Let's pretend that this is your sister here. Now, what's your favorite toy? O.K., let's pretend that she's holding that _____, and you want it. Show me what you are going to do so you can have a chance to play with it."

Does the child know the answers and has decided to pull your leg instead of play it your way? Tell him you know he's got some answers, and is having fun teasing you, but you want to know what he really thinks he could do to get the toy.

However, there are legitimate reasons for not scoring well; having no ideas, not understanding the word

'different', etc. Be sure you are making yourself as clear as possible with the probes (see 6 & 7), that you address yourself to any confusions the child appears to be having, and that you do your best to make the child comfortable and help him enjoy the game. After that, it's up to him.

10. Your language should be simple, your sentences short and to the point. Modulate the tone and loudness of your voice to emphasize the important ideas.
11. Reinforce your helper often to keep him involved in his role in the game. Reward him for playing quietly with the toy until the subject comes up with a new solution, and for not giving any ideas.
12. Quicken the pace as you begin to see that a subject is not coming up with answers or has no new ideas. Shorten the length of time between probes.
13. Even though you are concentrating on eliciting valid answers, ATTEND TO AND RECORD ALL RESPONSES (irrelevant, repetitive, and nonscoreable answers). Allow adequate time (5 to 7 seconds) for the child to respond. No answer constitutes a NON-RESPONSE, and MUST BE RECORDED.
14. REINFORCEMENT Your ability and willingness to reinforce both children is your best tool for creating an enjoyable and successful testing process. The most powerful reinforcers at your disposal are personal ones; your attention, eye contact, willingness to listen, physical touch, and enthusiasm.
15. When the test is finished, praise both children and give another sticker to each child.

BIPS Scoring Instructions

1. Look at question number 1. If there is only one initial response, you accept it and categorize it according to the "Relevant Solutions and Solution Categories" sheet.
2. If there is more than one initial response, this means that the experimenter did not accept the response and continued to probe. The non-acceptance of a response may be due to a variety of reasons: The response was (a) a substitute goal; (b) an irrelevant solution; (c) an enumeration, or (d) a repetition. An irrelevant solution is a response which has absolutely nothing to do with the present situation. It is totally off target. An enumeration is a response that belongs in the same category as a previous response but is not EXACTLY the same as a previous response. A repetition is a response which is EXACTLY the same as a previous response.
3. Be careful as to how many solutions you can score per category. In most of the categories you can score only one solution; but there are 3 exceptions: the "Fair, Share Turns" group 1 category - score two solutions; the "Trick" category - score each new trick; and in the "Finagle: Verbal " category score each one.
4. When you have two categories in one sentence , for example, "Steal it and grab it" you score both categories (plan for the future and force grab).
5. The categories are written on the left side of the protocol and underlined in red. Substitute goals, irrelevant responses, enumerations, and repetitions are NOT underlined.
6. Responses such as "I don't know are not scored.

Relevant Solutions and Solution Categories

Ask

Can I hold it (have it, play with it)?
Ask him for it.
I want it.

Score one

Please

Say please.
Pretty please can I have it?

Score one

Manipulate Affect

Group 1 Make the other panic and leave
Scare him away.
Put a sheet on so he'll go away.
Tickle him from behind and he'll run.
Scream real loud and he'll run away.

Score one

Group 2 Emotional, gradual bad feelings
B says "I like you".
I won't like you if. . .
Say she won't speak to him
I'll be your friend.
I won't be your friend
Name calling.

Score one

Group 3
I really like that toy.
I don't like that old toy.

Score one

Group 4
Cry so he'll feel bad.
Say "I don't have any toys to play with".
Look real sad.

Score one

Wait

Wait until he's finished.
Can I have it when you're done?

Score one

Force-Grab

He takes it.
He snatches it away.
He grabs it.

Score one

Physical Attack on Person

Group 1 Direct
Hit him.

Kick him. Score one
 Bite him.
 Scratch him.

Group 2

Get his dog after him.
 Get his cat after him. Score one

Group 3 Using a tool

Throw sand in his face so he can't see
 then take the toy. Score one
 Splash him with water so he can't play
 with the toy.

Damage to Property

I'll smash your car.
 I'll rip your clothes. Score one
 I'll break your toys.
 I'll blow your house down.

Command Bossy

Give it to me.
 Gimme. Score one
 That's mine!

Plan for Future

When it's night time, he'll sneak in and
 take it. Score one
 Take it when he's not looking.
 When he goes for a drink of water take it.

Loan

Can I hold it for a little while?
 I'll give it right back Score one
 I won't keep it

Fair, Share, TurnsGroup 1 They can take turns

They can share it
 Any form of play together Score two

Group 2 Can I have it after you?

You've had it a long time and
 now I want a chance (turn).
 You've had lots of chances and
 now I want a chance (turn). Score one

Trade-Bribe

Group 1 offer object; deny object

Give him candy
 Give him ice cream
 Give him money
 You can't have any birthday cake Score one

Group 2 inviting to an activity
 You can come to my house
 You can't come to my house
 I'll invite you to my birthday party
 I won't let you come to my birthday party Score one

Group 3 play with toy
 You can play with my (toy presented)
 You can play with my firetruck (toy other than that presented)
 You can't play with my (toy)
 B get another toy and not let her (A) play with it Score one

Group 4 service
 Push him (swing)
 I'll walk you to school Score one

Authority Intervention person

Tell (ask) his mother (father, sister, etc.)
 Get his big sister (brother, etc.) after him
 Get his friend after him
 His mother (father) will beat him (take the toy away, etc.) Score one

Finagle verbal

Sneak it
 Trick him
 Tell him his mother's calling him
 Put his name on it and say it's his (B's) Score each

APPENDIX C BEHAVIORAL OBSERVATION SCALE

The purpose of the behavior observation scale is to obtain a sample of the quantity of positive and negative interactions that occur within peer-peer and peer-adult relationships.

POSITIVE SOCIAL INTERACTION

Nonverbal Peer

Any positive or neutral behavior directed toward another child which involves a reciprocal response. The two way nature of a scoreable interaction necessitates not only the output of the subject child, but some indication of recognition and attention from the second child and/or children in the interaction.

Scored Behavior Examples.

Helping. e.g. subject comes and pushes a wagon from behind which is being pulled by another child.

Giving sympathy. e.g. subject goes over and puts his arms around a crying child. Showing consideration. e.g. subject holds the drinking fountain on for another child.

Sharing. When on subject passes or hands an object/material to a second child, if both children touch the object/material within 5 seconds, or when two or more subjects simultaneously use the same object/material. e.g. coloring on the same sheet of paper at the same time.

Positive touching with hands, . e.g. hugs, holding hands, kisses, waving.
Smiling.

Nonscored Behaviors

Parallel play.

Solo play.

Nonverbal Adult

Same as with peer except that positive behavior is directed toward an adult.

Scored Behavior Examples:

Following directions given by an adult. e.g. child follows the request of an adult within five seconds and without request being repeated. Same as positive nonverbal behaviors with peer except conducted with an adult.

Verbal Peer

Any positive or neutral verbalization directed toward another child in which there is some indication of recognition and/or attention from the second child.

Scored Behavior Examples:

Praise. Any verbalization by a subject to a peer in which the subject indicated approval, liking, or admiration for the peer, or any aspect of the peer's work. e.g. I like your picture, pretty doggy.

Giving reasons for one's own behavior. e.g. It's my turn because I was here first.

Neutral. e.g. I have on blue shoes.

Laughing.

Verbal Adult

Any positive or neutral verbalization directed toward an adult in which there is some indication of recognition and/or attention from the adult.

Scored Behavior Examples:

Requesting Help. e.g. will you tie my shoe

Praise. e.g. Teacher you look pretty

Descriptive. Verbalization directed toward an adult in which information is second source. e.g. My daddy says that we get to go see Santa.

Questioning. e.g. Mrs. Watson, what are we making?

NEGATIVE SOCIAL INTERACTIONNonverbal Peer

Any negative behavior directed toward another child which involves a reciprocal response. The two way nature of a scoreable interaction necessitates not only the output of the subject child, but some indication of recognition and attention from the second child in the interaction.

Scored Behavior Examples:

Physical attacks on another person e.g. pushing, hitting, kicking, biting, pinching.
Grabbing object from another child.
Interfering with another child's activities. e.g. waving hands in front of the face of another child, pulling another child's paper while they are working, standing in front of another child and blocking their view while the teacher is reading a story.
Destroying the construction of another child. e.g. knocking another child's block design over.

Nonverbal Adult

Any negative nonverbal behavior directed toward an adult obtaining recognition or attention from the adult.

Scored Behavior Examples:

Not following directions.
Persistence in touching an adult after the adult indicates that it is no longer desirable.

Verbal Peer

Any negative verbal behavior directed toward another child in which there is some indication of recognition and/or attention from the second child. All crying is recorded as negative verbal except when there is obvious physical harm to the child. Counting negative verbal behavior is begun as soon as the child is acknowledged by either peer or adult within a ten foot radius of the child.

Scored Behavior Examples:

Name Calling. e.g. stupid, mommy cakes on Johnny, you're a bad boy.
Crying or Screaming.
Threatening. e.g. If you don't give me that I'm going to hit you.
Bossing. e.g. Go get my coat right now. No not that way, we're making circles, we're scrubbing it. We don't want you in here. Get out of this place.

Teasing. e.g. You can't have a ball.

Verbal Adult

Any negative verbal behavior directed from the subject to an adult.

Scored Behavior Examples:

No

I am not doing it. I don't have to.

SCORING PROCEDURE

1. Behavioral samples are taken only when a child is involved in free choice activity. Not when in a teacher directed activity.
2. Timing. All negative and positive nonverbal behavior which persists longer than one second is timed. Each second, including the first second the behavior is emitted, is counted as one response. For example, when a child is interacting positively with another child the interaction is timed and could be in length from one second to ... N seconds.
3. Child observation time samplings.
 - a. Each child must be observed for fifteen minutes a day on three days.
 - b. The fifteen minute observation should be split into two sessions. The first session shall consist of a 7 minute observation with the second session an 8 minute observation.
 - c. The three observations do not need to occur one day following the next. It is permissible to have a day or two in between ratings.
 - d. Observations should occur only during non-teacher directed activities.
 - e. Three of the observations should occur in the morning and three in the afternoon.
 - f. Three of the observations should occur indoors and three outdoors.

Notes for Training

1. Rapid physical or verbal contacts are recorded as separate instances only when a one second or greater latency period occurs between contacts.
2. Neutral behaviors include such behaviors as: sitting in the sand box staring into space, solo play, getting a drink, sitting or standing without interacting with others, going to the bathroom.
3. Rate all behaviors according to what the subject (child) you are observing does or says; NOT the teacher or the child with whom he is interacting.
4. While observing it is critical that you do not get distracted by other happenings in the preschool area. Undivided attention should be maintained on the child you are observing, even if it appears he is involved in a neutral, unscorable behavior.
5. Pulling on a child to get him/her out of the way (even if for a brief moment) is scored as negative nonverbal behavior.
6. Asking questions of adult is scored as positive verbal adult interaction.
7. Behavioral samples should be taken ONLY when the child is involved in free choice activity. Not when it is a teacher directed activity.
8. You must move around so that you can be in close enough proximity to the subject you are observing so that you can see and hear him/her.
9. Every single verbal and nonverbal interaction can be scored.
10. When recording behavior on the score sheet remember:
 - a. to indicate time
 - b. to record date
 - c. to record you name and child's subject number
 - d. to summate each category

APPENDIX D

SAMPLE LESSONS

Lesson 2

(Sample Lesson: Language Concepts and Empathy)

Purpose: 1. To reinforce the understanding of the language concepts "same " and "different". The understanding of the meaning of these words will later facilitate the generalization of alternative solutions to problem situations. "Can you think of something different to say or do?

2. To demonstrate the understanding of the language concepts "same" and "different" by responding correctly when asked to differentiate between the two.

3. To listen to a story involving puppet and be able to identify the predominant feeling of the puppet "happy".

Materials: One friendly puppet; Peabody pictures - Kit level II.

Procedure:

1. Introduce the puppet to the children in the group by changing your voice and individually greeting each of the children with the puppet. Your voice change along with the behavior of the puppet should be utilized to give the puppet character and to arouse the interest of the group. Say to the children, "_____", the puppet, will be going away now however he will be back to play with us later in the lesson." Next Teacher stands and says, "Watch me to see if I do the same thing or something different".

CUE : Watch me. Same or different.

2. Teacher: Stands in the middle of the group. She jumps up and down three times. She jumps up and down three times, again. Says, "I jumped up and down and then I jumped up and down again. Did I do the same thing or something different?"

3. Teacher reinforces correct responses. "That's right, I did the same thing."

CUE: Watch me. Same or different.

4. Teacher: Stands in the middle of the group. She claps her hands two times. She claps her hands two times again. Says: "I clapped my hands two times and then I clapped my hands two times again. Did I do the same thing or something different?"

5. Teacher reinforces correct responses. "You are right again, I did the same thing. I think these must be too easy for you. I am going to do a real hard one so that I can trick you."

CUE: Watch me . Same or different.

6. Teacher stands in the middle of the group. She jumps up and down three times. She claps her hands two times. Says: "I jumped up and down and then I clapped my hands . Did I do the same thing or something different?" Teacher reinforces correct responses. "That's right, I did something different. You are really hard to trick today, you get even the hard ones right. I know, maybe you can trick each other."

7. Teacher: Call up two children from the group. Tell one child (by whispering in his ear that you want him to sit down). Tell the other child that you want him to stand up. Tell them they should begin when you say "do it".

CUE: Watch _____ and _____ (Supply children's names). Same or different.

8. Teacher: To the two children "Do it." To the group, "Did they do the same thing or something different?" Teacher reinforces correct response. "That's right, they did something different."

CONTINUE WITH THIS GAME ALLOWING ALL OF THE CHILDREN TO HAVE A CHANCE TO PARTICIPATE.

9. The puppet utilized at the beginning of the story is brought out again. "Remember I said _____, the puppet would be back. Well here he is to tell us a story." Puppet: "I want you to listen

to this story and see if you can figure out how I feel at the end of the story."

CUE: Listen to see how _____ feels.

Puppet: "Most of you don't know this but I just had a birthday and now I am four years old. Well, I have to tell you what happened on my birthday. You see, I was so excited about my birthday coming up. I had been waiting for a very, very long time and I was hoping that I would get a little puppy for my birthday. Everyday I would say to my mommy, 'Mommy, I would really love to have a puppy for my birthday.' My mommy would always say that I would have to wait and see. She could not promise me that I would get a puppy for my birthday. Well, I woke up the morning of my birthday because I heard a funny noise outside of my window. Do you know what I saw when I looked out the window? I saw the cutest little puppy in the whole world. I felt so _____."

Teacher: "How did _____ feel?" (Supply puppet's name) Reinforce correct responses. "That's right we could tell that _____ felt very happy."

10. Participation: Allow each child in the group to have a chance to tell you something that makes them happy. During participation the teacher should reinforce the language concepts "same" and "different" and also the feeling of "happy". This can be done by saying to each child, _____, (whatever they just said, give it back to them in summary form) made you feel very happy. That's a different idea than what made the puppet feel happy. If a child suggests the same idea as the puppet or as another child who has told a story then say "that's the same idea as _____."

Lesson 18
(Sample Lesson: Alternative Thinking)

Purpose: 1. To teach children to generate lots of ways things can be done or ideas about how to solve a problem. 2. To reinforce the concept of generating lots of solutions is a positive way of attempting to solve a problem.

Materials: chalkboard and chalk; puppets

Procedure: Teacher begins the lesson by introducing the children to the puppet they are going to be using in today's lessons.

Puppet: "I am very, very, hungry but I don't know what to eat for breakfast. Can you help me come up with some ideas of things I can eat for breakfast?"

Teacher: Say, "Let's think of lots of different ideas. See if you can fill up this whole board (point to the chalkboard) with your ideas." Reinforce any new ideas the children come up with. Write them on the board and number them. DO NOT discourage any responses that the children may have. For example, some children may come up with some atypical breakfast foods. Do not discourage these ideas. This is brainstorming and any edible foods should be included. Be sure to utilize the language concepts by saying "same" and "different" when the children's responses match or do not match those previously stated. If one child says Rice Krispies and another child says Corn Flakes, say those are different cereals. Encourage the children by saying, "Gee, you are coming up with so many ideas I may have to go get another chalkboard. I'm afraid you will fill this one all up."

Puppet: "Thank you so much for all of the ideas you gave me. I have so many different things that I can have for breakfast."

Continue with this same procedure this time using the following situation with the puppet. The puppet is unable to decide what to do. The puppet has the entire day to play and he does not know what he wants to play. Again encourage the children to generate lots of solutions and ideas of what the puppet can play. Assist the children by classifying their responses according to same

and different. Encourage the children to come up with lots of different ideas.

REFERENCE NOTES

1. Shure, M. B., & Spivack, G. Preschool interpersonal problem solving (PIPS) test manual. Philadelphia: Department of Mental Health Sciences, Hahnemann Community Mental Health/Mental Retardation Center, 1974.
2. Vaughn, S. R., Ridley, C. A., & Kranichfeld, M. L. Evaluating a preschool interpersonal competence program: An approach to primary prevention. Paper presented to the 58th annual meeting of the American Orthopsychiatric Association, New York, April, 1981.

REFERENCES

- Allen, G., Chinskey, J., Larcen, S., Lochman, J. E., & Selinger, H. Community psychology and the schools: A behaviorally oriented multilevel preventative approach. Hillsdale, N.J.: Earlbaum, 1976.
- Argyle, S., & Kendon, K. The experimental analysis of social performance. In L. Berkowitz (Ed.) Advances in experimental social psychology. (Vol. 3) New York: Academic Press, 1967.
- Bandura, A. Social learning theory. Morristown, N.J.: General Learning Press, 1971.
- Behar, L., & Stringfield, S. A behavior rating scale for the preschool child. Developmental Psychology, 1974, 10, 601-610.
- Blackham, G. J. Modification of child behavior. California: Wadsworth, 1971.
- Bryan, J. H. Children's cooperation and helping behaviors. In M. Hetherington (Ed.), Review of child development research (Vol. 5). Chicago: University of Chicago Press, 1975.
- Camp, B. W., Blom, G. E., Herbert, F., & van Doornick, W. J. Think aloud: A program for developing self control in young aggressive boys. Journal of Abnormal Child Psychology, 1977, 5, 157-168.
- Charlesworth, R., & Hartup, W. W. Positive social reinforcement in the nursery school peer group. Child Development, 1967, 38, 993-1002.
- Chittenden, G. E. An experimental study in measuring and modifying assertive behavior in young children. Monographs of the Society for Research in Child Development, 1942, 7(1, Serial No. 31).

- Cowen, E. L., Pederson, A., Babigian, H., Izzo, L. D., & Trost, M. A. Long term follow-up of early detected vulnerable children. Journal of Consulting and Clinical Psychology, 1973, 41, 438-446.
- Crowther, J. H., Bond, L. A., & Rolf, J. E. The incidence, prevalence, and severity of behavior disorders among preschool aged children in day care. Journal of Abnormal Child Psychology, 1981, 9(1), 23-42.
- D'Zurilla, T. J., & Goldfried, M. R. Problem-solving and behavior modification. Journal of Abnormal Psychology, 1971, 78, 107-126.
- Giebink, J., Stover, D., & Fahl, M. Teaching adaptive responses to frustration to emotionally disturbed boys. Journal of Consulting and Clinical Psychology, 1968, 32, 366-368.
- Gordon, T. Parent effectiveness training. New York: Wyden, 1970.
- Hagerman, H. A. Improved problematic dental behavior of children through time-limited Adlerian parent education. Unpublished doctoral dissertation, University of Arizona, 1982.
- Hallahan, D. P., & Kauffman, J. M. Exceptional Children. Englewood Cliffs, N.J.: Prentice-Hall, 1982.
- Hartup, W. W. The social worlds of childhood. American Psychologist, 1979, 34, 944-950.
- Hartup, W. W., Glazer, J. A., & Charlesworth, R. Peer reinforcement and sociometric status. Child Development, 1967, 38, 1017-1024.
- Kagan, J., & Moss, H. A. Birth of maturity: A study in psychological development. New York: Wiley, 1962.
- Kohlberg, L. Stage and sequence: The cognitive-developmental approach to socialization. In D. Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969.

- Kohn, M. The child as a determinant of his peers approach to him. Journal of Genetic Psychology, 1966, 109, 91-100.
- Kohn, M., & Rosman, B. A. A social competence scale and symptom checklist for the preschool child: Factor dimensions their cross-instrument generality and longitudinal persistence. Developmental Psychology, 1972, 6, 430- 444.
- Lorr, M., & Jenkins, R. L. Patterns of maladjustment in children. Journal of Clinical Psychology, 1953, 9, 16-19.
- Maccoby, E. E. Social development: Psychological growth and the parent child relationship. New York: Harcourt, Brace, Jovanovich, 1980.
- McClure, L. F., Chinskey, J. M., & Larcen, S. W. Enhancing social problem-solving performance in an elementary school setting. Journal of Educational Psychology, 1978, 70, 504-513.
- Meichenbaum, D., & Goodman, J. Training impulsive children to talk to themselves. Journal of Abnormal Psychology, 1971, 77, 115-126.
- Parke, R. P. Emerging themes for social-emotional development. American Psychologist, 1979, 34, 930-931.
- Parnes, S. J. Creative behavior guidebook. New York: Scribner's, 1967.
- Peterson, D. R. Behavior problems of middle childhood. Journal of Consulting Psychology, 1961, 25, 205-209.
- Quay, H. Patterns of aggression, withdrawal, and immaturity. In H. Quay and B. Werry (Eds.), Psychopathological disorders of childhood. New York: John Wiley, 1972.
- Ridley, C. A., & Vaughn, S. R. Interpersonal problem solving: An intervention program for preschool children. Journal of Applied Developmental Psychology, 1982, 3, 177-190.
- Ridley, C. A., & Vaughn, S. R. The effects of a preschool problem solving program on interpersonal behavior. Child Care Quarterly, in press.

- Ridley, C. A., Vaughn, S. R., & Wittman, S. K. Developing empathic skills: A model for preschool children. Child Study Journal, 1982, 12, 89-97.
- Roff, M. Childhood social interactions and young adult bad conduct. Journal of Abnormal and Social Psychology, 1961, 63, 333-337.
- Roff, M., Sells, S. B., & Golden, M. M. Social adjustment and personality development in children. Minneapolis: University of Minnesota Press, 1972.
- Sharp, K. C. Impact of interpersonal problem-solving training on preschooler's social competency. Journal of Applied Developmental Psychology, 1981, 2, 129-143.
- Shure, M. B., & Spivack, G. Problem-solving techniques in childrearing. San Francisco: Jossey-Bass, 1978.
- Shure, M. B., & Spivack, G. Interpersonal problem-solving as a mediator of behavioral adjustment in preschool and kindergarten children. Journal of Applied Developmental Psychology, 1980, 1, 29-44.
- Shure, M. B., Spivack, G., & Jaeger, M. A. Problem solving thinking and adjustment among disadvantaged preschool children. Child Development, 1971, 42, 1791-1803. Also in Spivack, G., Platt, J. J., & Shure, M. B. The problem-solving approach to adjustment. San Francisco: Jossey-Bass, 1976.
- Spivack, G., & Shure, M. B. Social adjustment of young children. San Francisco: Jossey-Bass, 1974.
- Steed, S. P. The influence of Adlerian counseling on familial adjustment. Unpublished doctoral dissertation, University of Arizona, 1971.
- Stengel, E. Suicide and attempted suicide. New York: Penguin, 1971.

- Stollak, G. E., Scholom, A., Kallam, J., & Saturansky, C. Insensitivity to children: Responses of undergraduates to children in problem situations. Journal of Abnormal Child Psychology, 1973, 1, 169-180.
- Strain, P. S., Shores, R. E., & Kerr, M. A. An experimental analysis of spillover effects on the social interactions of behaviorally handicapped preschool children. Journal of Applied Behavior Analysis, 1976, 9, 31-40.
- Vaughn, S. R. A behavioral observation of a preschool interpersonal problem solving program. Unpublished doctoral dissertation, University of Arizona, 1981.
- Vaughn, S. R., Ridley, C. A., & Cox, J. Can the mentally retarded learn to solve interpersonal problems more effectively? -- Evaluation of a training program. Education and Training of the Mentally Retarded, in press.