Teaching Health-Related Behaviors to Young Children through Social Skills Training

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TEACHING HEALTH-RELATED BEHAVIORS TO YOUNG CHILDREN THROUGH SOCIAL SKILLS TRAINING

by

Mary Louise Stevens

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology

Western Michigan University
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Mary Louise Stevens
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Western Michigan University PH.D. 1980

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td><strong>Chapter</strong></td>
<td></td>
</tr>
<tr>
<td>I INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II METHOD</td>
<td>14</td>
</tr>
<tr>
<td>Part I Subject</td>
<td>14</td>
</tr>
<tr>
<td>Experimental Setting</td>
<td>15</td>
</tr>
<tr>
<td>Behavioral Assessment</td>
<td>15</td>
</tr>
<tr>
<td>Recording and Scoring of Target Behaviors</td>
<td>18</td>
</tr>
<tr>
<td>Reliability of Behavioral Measures</td>
<td>19</td>
</tr>
<tr>
<td>Procedure</td>
<td>19</td>
</tr>
<tr>
<td>Part II Subject</td>
<td>28</td>
</tr>
<tr>
<td>Experimental Setting</td>
<td>28</td>
</tr>
<tr>
<td>Behavioral Assessment</td>
<td>28</td>
</tr>
<tr>
<td>Procedure</td>
<td>32</td>
</tr>
<tr>
<td>III RESULTS</td>
<td>35</td>
</tr>
<tr>
<td>IV DISCUSSION</td>
<td>67</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>75</td>
</tr>
</tbody>
</table>

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CHAPTER I

INTRODUCTION

Social skills training, especially with children, is rapidly becoming a prominent topic of research in the field of applied behavior analysis. The necessity for such research is documented in a multitude of sources describing the relationship between childhood skill development (or lack of it) and later adjustment in adulthood. Ziegler and Phillips (1961, 1962) view psychopathology* along developmental lines beginning in the formative years. They propose that individuals progress through successive stages or levels of maturity. At each level of maturation society presents a complex set of tasks to the individual who either solves them appropriately or does not. Psychopathology (deficient repertoire) is equated with inadequate or inappropriate problem resolution. Remission of this deficiency is defined as successful resolution of difficulties in adapting to the environment.

Kagan and Moss (1962) concluded on the basis of a longitudinal study that "passive withdrawal from stressful situations, dependency on the family, ease of anger arousal, involvement in intellectual mastery, social interaction anxiety, sex-role identification, and pattern of sexual behavior in adulthood were each related to reasonably analogous behavior dispositions during the early school years."

*This traditional term may better be understood in terms of a behavior disorder or deficient repertoire.
That is, many of the behaviors common to a child of age six to ten showed moderate predictive ability (correlations of .64-.68) for adult behaviors. When childhood behavior is congruent with traditional sex-roles it often predicts similar behavior in adulthood. This was true in reference to intellectual mastery and adoption of appropriate sex-typed interests. But when the childhood behavior is inconsistent with typical sex-role patterns, the childhood behavior pattern is not predictive of the adult one. This occurred in reference to passive and dependent behavior, expression of anger, and frequent sexual behavior. Thus, childhood passivity and dependency were related to similar adult behaviors for women, but not men. Also, childhood temper tantrums and frequent dating predicted adult preferences for sexual and aggressive activity for men, but not for women.

O'Connor (1969) concurs with the notion that social incompetency as a child tends to lead to dysfunctional interpersonal relationships as an adult which in turn reinforces avoidance behavior. That is, a child who lacks appropriate social skills is hampered in acquiring other complex behaviors required for effective social interactions. Children unable to relate well to others will be punished and/or rejected by others. These experiences reinforce interpersonal avoidance which serve to impede development of competencies that are learned primarily through social means.

E. L. Phillips (1978) views social skills training as an alternative and superior substitute to traditional views of psychopathology. He sees the lack of social skills as a significant behavioral
deficit which promotes what has traditionally been labeled as psychopathology or an inability to cope with the environment. As an alternative to traditional psychotherapy he recommends teaching better coping behavior. This entails teaching skills in recognizing a problem, seeing the context of a problem, realizing our contribution to the problem, recognizing the interpersonal and other demands of a situation and being able to relate appropriately with others. These component behaviors combine into a generalized skill which he labels social skills and/or social competency.

In discussing the importance of early development of effective social skills in children, Combs and Slaby (1977) emphasize that social skills are among the most important skills a child learns. Development of this repertoire has implications for nearly every facet of life including one's education, career and recreational endeavors. They state that "social isolates" and children with other problems in peer relations show a higher incidence of school maladjustment (Gronlund and Anderson, 1963), school drop out rate (Ullman, 1957), juvenile delinquency (Roff, Sells and Golden, 1972), bad-conduct discharges from military service (Roff, 1961) and adult mental-health problems (Cowen, Pederson, Babigian, Izzo and Trost, 1973). Finally, they point out that children who are unable to gain and maintain peer reinforcement through appropriate means may revert to anti-social behaviors, such as aggression, to achieve control, recognition and attention from peers. These deficits in social skills can contribute to the etiology of aggression as well as the more obvious strategy of withdrawal or social isolation.
Another rapidly expanding area of research, in addition to social skills training, is the area of health and nutrition. Whereas social skill research can be subsumed under the general heading of preventive mental health, nutrition and health research can be subsumed under the general heading of preventive physical health. When these two concepts are combined, as was accomplished in the present research project, one has the beginning of a general mental-physical preventive health program for preschool age children.

Physical health is a major issue in our society since many adults lack a pro-health lifestyle despite well documented facts concerning what substances and activities are harmful to our bodies. We are consistently alerted to the conditions required for proper development and maintenance of our health, but external variables make it difficult for adults to change less than desirable, but long-standing habits. Thus, the emphasis for developing a pro-health lifestyle must be placed on young children before undesirable, ingrained behavioral patterns are learned. The need for such programs is based partially on research conducted by Pritiken (1979) documenting a tremendous need in this country to change diet and exercise habits in order to obviate multiple forms of diseases and to extend our life expectancy. A proposed cause of poor health habits is the immediate reinforcing effects of many harmful and addictive substances such as sugar, caffeine, drugs, etc. As learning trials are repeated over and over with such substances the behaviors result in habitual patterns or "addictive personalities" (Rachlin, 1974). A proposed solution to this unfavorable outcome is training in assertiveness in
conjunction with knowledge of sound nutritional and other health-related facts.

Longstanding eating habits are primarily developed at an early age so it seems critical to teach appropriate dietary and other pro-health habits during the pre-school years. Recent studies indicate that nutrition is probably the single most important variable in determining a child's growth, functioning, and resistance to disease. Foster (1972) states that research findings on the relationship between nutritional intake and intellectual growth indicate a direct correspondence between inadequate diet and reduced learning capacity. Birch and Gussow (1970) state that the single most important variable in promoting growth and resistance to disease is nutrition. They also conclude that malnutrition can interfere significantly with learning since it impedes the child's ability to respond adequately to significant stimuli in the environment.

Evidence for the notion that young children adapt readily to significant changes in habits is cited by Herbert-Jackson and Risley (1977). They demonstrated that preschool children would consume nonfat dry milk and whole milk. The later is less desirable as it contains large amounts of cholesterol. Godfrey and Schultz (1972) concluded that it is critical to develop these nutritional preferences in younger children since by age 12 their attitudes toward whole milk vs. nonfat milk have developed with a strong preference for the whole milk.

Once the necessity for a preventive mental-physical health program has been established, the next step is to analyze the concept
of social skills in order to formulate an effective training program. Social skills refer to a broad behavioral repertoire which includes assertive behavior as one of its components. Assertiveness can, in turn, be broken down into various components. Reardon, Hersen, Bellack and Foley (1979) have delineated such a classification system. Verbal components include compliance, requests for new behavior, regard, spontaneous positive behavior and appreciation. Nonverbal aspects entail eye contact, smiles, duration of reply, number of words spoken, latency of response, affect and gestures.

Rinn and Markle have developed a taxonomy of social skills which they utilize in their training program. It includes: 1) self-expressive skills (expression of feelings, expression of opinion, accepting compliments, stating positives about oneself), 2) other enhancing skills (stating positives about others, agreement with another's opinion, praising others), 3) assertive skills (making simple requests, disagreeing with another's opinion, denying unreasonable requests), and 4) communication skills (conversing, interpersonal problem solving).

Rose and Tryon (1979) manipulated selected behavioral components of social interaction behavior to ascertain what components would be judged as assertive by independent viewers. Results demonstrated that voice loudness, latency of response, verbal content, gestures, and inflection all contributed to assertive behavior as opposed to aggressive or submissive behavior. These results substantiated earlier findings by Eisler, Miller and Hersen (1973) which indicated that assertive response topographies included shorter response
latencies, louder speech, longer speech duration, greater affect, less total compliance, and requests for changes in behavior by others.

Studies of social skills training and development have been conducted in the framework of single subject experimental designs and group experimental designs. Bornstein, Bellack and Hersen (1977) are pioneers in single subject social skills training programs. They completed a study with four unassertive elementary aged children and did a sequential analysis of the component behaviors which combine to comprise assertive behavior. Training was applied in a multiple baseline design manner and consisted of instructions, behavioral rehearsal, modeling and feedback concerning specific response components and overall assertiveness. They found that ratio of eye contact to speech duration, loudness of speech, number of requests, and number of words spoken are all individual components of the general social skill of assertiveness. Results showed substantial increases over baseline levels for both training scenes and generalization scenes (untrained scenes) and performance was maintained at two- and four-week follow-up evaluations. But there were no measures of in vivo generalization occurrences in order to assess if training generalized to the natural environment (classroom and home).

Beck, Forehand, Wells and Quante (1978) expanded on this line of research with unassertive elementary aged children chosen on the basis of sociometric ratings and data based classroom observation of their interactions with peers. Training was consistent with Bornstein's procedure and focused on verbal interactions, eye contact and smiling. Results indicated large target response changes on training and
generalization scenes. However, behavioral observations in the classroom and peer sociometric ratings failed to show effects associated with training in the analogue (role playing) setting.

Whitehill (1978) taught conversational skills with a package very similar to that used by Bornstein et al. (1977) and Beck et al. (1978). In addition, programmed generalization was incorporated by means of a specific instruction set given at the end of each probe administration. Four socially isolated elementary aged children were chosen on the basis of peer sociometric ratings, a behavioral role-playing task, naturalistic observations and teacher ratings. Results show that training produced significant improvement in component behavior (open-ended questions, informative statements, requests for shared activity) as well as overall conversational ability for all subjects on trained scenes. Effects also generalized to untrained scenes or generalization scenes with three of the four subjects. These findings were maintained at a four week follow-up, but were not as pronounced at an eight week follow-up. Three of the four subjects also displayed pre to posttreatment improvement in classroom interactions and these gains remained at four and six week follow-ups. Classroom observation data show that during treatment the percentage of time spent alone during free play decreased significantly, but increased somewhat by the eight week follow-up. Sociometric ratings showed only minimal improvement and teacher ratings also indicated minor change only.

Bornstein, Bellack and Hersen (1978) applied their treatment package to eight to twelve year old inpatients on a psychiatric ward
who displayed a high frequency and magnitude of aggressive behavior. They collected data during training sessions and on the subjects' interpersonal behavior in a small group on the unit. Results indicated significant changes in the desired direction on component behaviors (eye contact during speech, hostile tone, requests for new behavior) as well as overall assertiveness. Evidence for generalization was varied. One form of generalization was responses to scenes from the Behavioral Assertiveness Test for Children upon repeated prompts from the role model. These results mirrored, but were slightly lower than the trained responses to a single prompt. The other measure of generalization entailed performance in a therapy group setting. Results here were quite variable and thus inconclusive.

Earlier research in social skills training has been conducted with group experimental designs. O'Connor (1969) used symbolic modeling (film) as an intervention procedure to enhance social interaction in preschool isolates. The experimental group viewed a 23-minute film depicting a child interacting with others in social activities and receiving reinforcing consequences for doing so. A sound tract carefully described all the contingencies. The control group viewed a 20-minute film on dolphins. Pre and posttest data on interaction rate with peers indicated a significant increase for the experimental group which was comparable to nonisolate children in their classroom. The control group showed no change. In a related study, O'Connor (1972) examined the influence of shaping and modeling on social interaction. Four groups of preschool isolates were formed including: 1) Modeling and Shaping, 2) Modeling, 3) Shaping, and
4) Control. The same film used in the 1969 study was utilized in the two modeling conditions. Specially trained experimental assistants dispensed social reinforcement (praise and attention) for appropriate classroom interactions with peers in the two shaping conditions. Results replicated the 1969 findings. In addition, modeling was shown to more rapidly enhance social interaction among peers than shaping and to produce more stable response patterns over time than shaping. At a six week follow-up modeling subjects maintained an interaction level comparable to or higher than nonisolates, whereas shaping and control subjects returned to their isolate level.

Evers and Schwarz (1973) further examined the influence of modeling and social reinforcement in increasing social interaction in children. They compared modeling with modeling plus social reinforcement (praise), but used teachers rather than experimental assistants. They did so because they hypothesized that the unknown adults (experimenters) in O'Connor's study may have been aversive and thus less effective agents of social reinforcement. Results, however, were consistent with O'Connor's 1972 findings. The modeling condition resulted in increased social interactions with or without the addition of social reinforcement. These results were maintained or improved at a four week follow-up.

Gottman (1977) also used the O'Connor film in studying its effects on 32 isolated preschool children. Pre and posttest measures were taken with a detailed coding system of classroom behavior and a sociometric measure of the relationship between level of peer acceptance and social isolation. Pretreatment results showed that
withdrawn children selected on O'Connor's criteria (teacher ranking and 15 percent or less interaction time with peers) were alone and on task more frequently, less positive to peers, less negative to peers, less neutral to peers, and interacted less frequently with peers in comparison to unselected children. But experimental subjects were not significantly different from non-withdrawn children on sociometric measures of peer acceptance or peer rejection. Gottman reasons that frequency of peer interaction is not equivalent to peer acceptance and thus may not be an appropriate means, by itself, of qualifying a child for social skills training. Another significant finding was that modeling was no more effective than the control film in producing behavior change. He suggests that earlier findings by O'Connor (1969, 1972) and Evers and Schwarz (1973) "are an artifact of the lack of proper procedural methods in observation research."

Oden and Asher (1977) coached elementary aged socially isolated children in friendship making skills. Their three groups included: 1) A Coaching condition with instructions from an adult, practice through game playing with peers, and a review session; 2) a Peer pairing condition where children played the same games, as in condition one, but received no instructions or review; 3) a Control condition where subjects played solitary games only. Results of a pre and posttest sociometric measure indicated a significantly greater increase on a play sociometric rating for group one in comparison to groups two and three. Also, evidence for the effectiveness of treatment was shown by a greater, though nonsignificant, increase in number of best friends based on peer ratings. However, nonsignificant results were
obtained on work sociometric ratings and behavioral measures of social skills. Follow-up at a one-year interval indicated that children in the coached group continued to show progress on the play sociometric rating.

Ollendick and Hersen (1979) conducted a group social skills training program with incarcerated juvenile delinquents. A Social Skills group included instructions on alternative ways of handling interpersonal conflicts, behavioral rehearsal with group members, modeling of appropriate behavior by the therapist and feedback from the therapist and group members. They were also given social reinforcement for appropriate group behavior and were instructed to practice these newly-acquired behaviors outside of the training session. The Discussion group met for the same amount of time and discussed ways of dealing with similar problems, but used no behavioral procedures. The Control group had no weekly meeting of any type, but participated in the token economy program as did all subjects in the study. Assessment instruments included self-reports, role-playing measures, points earned in the token economy program and instances of disruptive behavior. Results indicated significant differences on the self-report, role-play measures and points earned in the token economy between the Social Skills group and the Discussion and Control groups. The superiority of the Social Skills group was clearly indicated over the other groups.

The present study is a combined preventive mental-physical health program for young children. The primary emphasis is on social skill training, but many of the specific scenes which are trained refer to
health-related areas involving avoidance of unhealthy substances by means of assertive behavior. Choice tests of generalization between gum and cereals which contain sugar and are sugarfree assess physical health exclusively. Part II of the study also assesses acquisition and maintenance of knowledge of physical health-related facts exclusively. Although strictly social conflict scenes could have been trained and assessed, content in the area of physical health was included in view of prior research findings indicating the need for formal training in pro-health behaviors.
CHAPTER II

METHOD

Part I

Subjects

The four subjects were five-year-old kindergarten students at the Child Development Center which is operated by Western Michigan University's Psychology Department. They were chosen on the basis of teacher assignment to one of two categories. Category 1 included: A low rate of verbal behavior in initiating and/or responding to peers and adults, seldom compliments or encourages others, seldom seeks advice or help from others when needed, seldom goes out of way to greet others, seldom states opinion or complaints to others, seldom makes preferences known. Category 2 included: Interrupts or distracts others, seldom compliments or encourages others, fairly often shows inappropriate social behavior, initiates verbal arguments with peers, agitates others, noncompliant when asked to quiet down, loud and noisy at inappropriate times and places, involved in quarreling and bickering, resistant to directions and argues about decisions, breaks school rules.

All subjects were considered to be normal in reference to intellectual, social, emotional and physical development. Subject 3 (S3) and Subject 4 (S4) were five-year old males whose general behavior patterns within the classroom setting qualified them for
assignment to Category 2, based on the teacher's observations. Subject 1 (S1) and Subject 2 (S2) were five-year-old females whose overall classroom behavior fit into Category 1, according to their classroom teacher's judgment. All subjects were judged as likely to benefit from social skills training based on their preintervention behavioral patterns in social settings.

**Experimental Setting**

The baseline assessments, training sessions and testing sessions were conducted in a small, private room which included a table and two chairs. The experimenter sat across the table from the subject while conducting training and testing sessions. During reliability checks an independent observer sat behind the experimenter, facing the child, in order to collect data on eye contact while the child was speaking.

**Behavioral Assessment**

Experimenter 1, the author, conducted all sessions with S3 and S4. Experimenter 2, an adult female, conducted all sessions with S1 and S2. A total of 16 scenes were developed for training and generalization purposes. They were classified into four general categories including harmful substances, healthy activities and edibles, social and conflict situations and strangers. The content validity for scenes actually representing the four general categories was obtained by teacher ratings substantiating that the scenes did, in fact, involve themes which pertained to these categories. The specific scenes used are as follows:
Training scenes:

1. You and a friend are both having some juice and she/he finishes first. Your friend has a cold, but still wants to drink out of your cup. What do you say and do?

2. You know that cigarette smoke is bad for your health. Someone you know is smoking a cigarette and the smoke keeps blowing right in your face. What do you say and do?

3. You and your friend see a medicine bottle on the counter with some pills in it. Your friend says "Let's eat some of them." What do you say and do?

4. You win a prize at a birthday party and you have a choice between a pack of bubble gum and a pack of sugarfree bubble gum. A friend says "Take the bubble gum," but you know the sugar in it is very bad for your teeth. What do you say and do?

5. You're grocery shopping with your mom and she starts to pick out Froot Loops cereal. You know that Product 19 is much better for you and would rather have it. What do you say and do?

6. You're playing at your friend's house and you go inside for a drink. The babysitter starts to make Kool-Aid, but you would rather have juice because it is much better for you. What do you say and do?

7. You have been playing with a special toy and a classmate comes over and grabs it out of your hands. What do you say and do?

8. During free play time another child runs by you and punches you. What do you say and do?
9. You're watching "Sesame Street" and your brother/sister comes in and changes the channel without asking you first. What do you say and do?

10. You're walking down the street and a strange man drives up and asks if you want to sit in the car with him and have some candy. What do you say and do?

Generalization scenes:

11. A friend is playing at your house. He/she has a bad cold and keeps coughing right in your face. What do you say and do?

12. A big kid on the block is smoking a cigarette and offers you a puff off of it. What do you say and do?

13. You're at a neighbor's house and the big brother dares you to eat some detergent so you can blow bubbles from your mouth. What do you say and do?

14. You're having snacks with your classmates and one of them grabs your treat right off of your plate. What do you say and do?

15. You're standing in line waiting to go out for recess and another kid steps right in front of you without asking. What do you say and do?

16. You're playing in the park by your house and a strange woman walks up and says she will buy you some ice cream if you go with her. What do you say and do?

The initial assessment consisted of three administrations of all 16 scenes. The following directions were read during all baseline and testing sessions.
"Today we're going to do some pretending. I'm going to be different people and you will be yourself. It's very important that you tell what you would really say and do if this happened. Do you understand?"

Once this was stated, any questions they might have have were answered and/or the complete set of directions was repeated if necessary. The scenes were then read verbatim while the pertinent data were collected on the subject's responses. Data were collected on baseline and testing days, but not on training days.

Recording and Scoring of Target Behaviors

Three components of assertive behavior were chosen based on relevancy to this age group, ease of recording and ease of training. They included: Ratio of eye contact to speech duration, content of verbal behavior, and a nonverbal operant response.

The first component of assertiveness involved the ratio of eye contact made while the child was speaking. The total amount of time in seconds which the subject looked at the experimenter while speaking was measured for each scene. A stop watch was utilized by the experimenter to record the time in seconds during which the subject made eye contact with them while speaking. The total amount of time in seconds during which the child spoke was later calculated from the tape recorded statement by means of a stop watch. The ratio was then computed by dividing total duration of eye contact while speaking by the duration of speech.

The second component of assertiveness involved the content of the verbal statement. Verbal behaviors which involved noncompliance,
disagreement with or a request for a change in behavior on the part of the other individual were defined as assertive statements. These data were recorded directly on a tape recorder and later played back for scoring purposes. The verbatim statement was also recorded on a data sheet for purposes of reliability checks by a second rater.

The third component involved an assertive action. Any operant response the child did or verbally described was recorded on a data sheet and scored as assertive or unassertive. The unassertive category included both aggressive and subassertive operants.

**Reliability of Behavioral Measures**

Interrater agreement was taken for 25 percent of data collection sessions. The independent observer was present during testing sessions, facing the child, while taking data on the eye contact the child made with the experimenter while she/he was speaking. Reliability data were calculated by dividing number of agreements by total number of agreements plus total number of disagreements multiplied by 100.

**Procedure**

Upon completion of baseline assessment, subjects received 10 sessions of social skills training. The training sessions, which lasted approximately 20 minutes, were given on alternate days from testing sessions. This was done in order to control for a possible fatigue factor in the subjects. Testing the day after training was completed also served as a more potent indicator of learning and long-term retention.
In accordance with a multiple-baseline procedure, the various components of assertiveness were applied in a sequential and cumulative manner over all 10 training sessions. During training sessions 1 to 4 eye contact while speaking was trained. During sessions 5 to 7 eye contact and specific verbal content were trained. In sessions 8 to 10 eye contact while speaking, assertive verbal content and assertive actions were all trained.

During intervention only scenes 1 to 10 were specifically trained in regards to the three components of assertive behavior. The generalization scenes, of related but different circumstances, were never trained with respect to these components. They were administered during baseline and after three training sessions were completed, in order to evaluate the transfer of learning to related, but situationally different circumstances.

Training directions were read to the subject at the beginning of each training session. They were:

"Today we will do some more pretending. I'll pretend to be different people and you be yourself. I will teach you what to say and how to act if these things really happen. Do you understand?"

Any questions the child might have at this time were answered and, if necessary, the directions were repeated once again.

The training procedure for eye contact involved the following steps:

1. Read the scene verbatim.
2. Give feedback on eye contact, e.g. one sentence regarding the length of it. Give instructions on eye contact by holding their
chin and telling them to make eye contact the entire time they are speaking. Place a magic button (colorful sticker the size of a dime) on your own forehead as a prompt. **Model** the behavior. Look at them and say the rule "It's important to look at someone when you're talking to them." Have them do a **behavioral rehearsal**, e.g. the child should state the same rule while they are looking at the experimenter.

3. Present the same scene again. Say "Let's try this again." If eye contact is made the entire time, they are responding verbally. Go onto the next training scene. If not, use feedback, instruction, modeling and behavioral rehearsal again. Then present the scene a third time and observe their response. Continue the training procedure on a particular scene until they obtain a 1.0 ratio of eye contact to speech duration.

4. Present the next training scene. Train as many scenes to criterion as possible during a 20-minute time interval.

5. Terminate. Give the child a choice of one out of two animals, cars or other small toys at the completion of the session. Verbally reinforce them by saying the reward is given because "they made good eye contact while speaking, paid attention, and worked hard." On sessions 6 to 9, also offer the subjects a choice between bubble gum with sugar and sugarfree bubble gum. Both types of gum will be rolled into the same shape and wrapped in aluminum foil. Both are already colored pink. On session 10 also offer subjects a choice between a small box of Froot Loops and a small box of Product 19.
The training procedure for eye contact and assertive content involved the following steps:

1. Read the scene verbatim.

2. Give feedback on eye contact and verbal content. For example, "You looked at me (most, some, none) of the time, but I want you to say such and such while you are looking at me." If necessary, hold their chin to prompt them to make eye contact with you the entire time they are speaking. Place the magic button (a colorful sticker the size of a dime) on your forehead between your eyes to cue them to make eye contact while speaking. Model the verbal behavior and make eye contact the entire time you are speaking. Next, ask them to do a behavioral rehearsal of the verbal behavior you have just modeled while making eye contact the entire time they are speaking.

Criteria for verbal content:

**Scene 1:** "Please don't drink from my cup because you will give me germs or a cold or because it's bad for my health, or you might make me sick." (noncompliance and reason why)

**Scene 2:** "Please move the cigarette because it's bad for my health or it's bothering me or it's hurting my eyes or I can't breathe well." (change in behavior and reason why)

**Scene 3:** "No, because it's poison or bad for my health or it could kill me." (noncompliance and reason why)

**Scene 4:** "No, because it rots my teeth or sugar is bad for my teeth or sugar is bad for me or sugarfree's better for my health." (noncompliance and reason why)
Scene 5: "I'd rather have Product 19 because it's better for me or better for my health or it has more vitamins, or because Froot Loops has sugar in it." (change of behavior and reason why)

Scene 6: "I'd rather have juice because it's better for me or it is healthier or has more vitamins, or because Kool-Aid has bad sugar." (change of behavior and reason why)

Scene 7: "Give me my toy back, you can't take it without asking first or I had it first so it's mine." (change in behavior and reason why)

Scene 8: "Don't do that again as you have no right to hit someone else or harm them or it's not good for me. (change in behavior and reason why)

Scene 9: "Stop or don't change the channel without asking me first or you have no right to turn my show off when I was here first." (noncompliance and change in behavior)

Scene 10: "No, because I don't know you or because you're a stranger or my mom told me not to go with strangers or I don't want any candy or it's poison." (compliance and reason why)

3. Present the same scene again. Say "Let's try this again." If eye contact is made the entire time they are speaking and they make a statement which meets the set criteria for that scene, move onto the next scene. If not, use feedback, instruction, modeling, and behavioral rehearsal again and present the scene a third time. Continue training on a scene until the ratio of eye contact to speech duration is 1.0 and the statement meets the predetermined criteria for that scene.
4. Present the next training scene. Train scenes 1 to 3 in one session, scenes 4 to 6 in the next training session and scenes 7 to 10 in the next session. Data collection will occur on testing days alternating with training sessions. All 16 scenes will be given.

5. Terminate: Give the child a choice of one out of two animals or cars or other small toy at the end of the session. Verbally reinforce by stating that they are receiving the reward because "they made good eye contact while speaking, paid attention, worked hard and learned to say the right thing."

The training procedure for eye contact, assertive content and assertive action followed the above steps and also trained specific assertive actions which were appropriate for those particular scenes.

Criteria for assertive action:

Scene 1: Holds his cup away from other child or offers to refill the other child's cup.

Scene 2: Waves smoke away from his face or actually moves away from the smoke.

Scene 3: Puts medicine away out of sight or actually leaves the situation.

Scene 4: Chooses sugarfree bubble gum by holding hand out or pointing to it.

Scene 5: Chooses Product 19 by taking it from the shelf or pointing to it.
Scene 6: Shakes head "no" for Kool-Aid or chooses juice by pointing to refrigerator or cupboard.

Scene 7: Takes toy back or puts out hand for it.

Scene 8: Shows arm which is hurt or moves away from the other child.

Scene 9: Points to the T.V. for the other child to change it back or changes it back himself.

Scene 10: Runs or walks away or shakes head "no."

Scoring criteria for generalization scenes:

Generalization scenes were also scored for ratio of eye contact to speech duration, assertive content and assertive actions.

Criteria for assertive content:

Scene 11: "Please stop coughing in my face as it will give me germs or a cold or it will make me sick. (change in behavior requested and reason why)

Scene 12: "No, it's bad for your health or it can make you sick." (noncompliance and reason why)

Scene 13: "No, it's bad for your health or it can make you sick or it's poison." (noncompliance and reason why)

Scene 14: "Don't do that or give it back as you need to ask first or you have no right to take my food or it's mine." (noncompliance or change in behavior and reason why)

Scene 15: "Don't do that as you have to ask first or go to the back of the line." (noncompliance or change in behavior and reason why)
Scene 16: "No, you're a stranger or I don't know you or it might be poison." (noncompliance and reason why)

Criteria for assertive actions:

Scene 11: Turns around to shield his/her own face or shows the other child how to cover their mouth when they cough.
Scene 12: Runs or walks away or shakes head "no" or blows smoke away by waving his/her hand.
Scene 13: Shakes head "no" or puts it out of sight or leaves.
Scene 14: Puts out hand to get snack back or takes it back.
Scene 15: Points to back of line or puts arm out to stop them.
Scene 16: Runs or walks away.

Special intervention for training healthy choices:

A special procedure was implemented following choice test 1 between sugarfree gum and bubble gum containing sugar, as all subjects chose the latter. At the end of a session, the experimenter modeled chewing sugarfree gum. This was done while saying "we both earned something, I'll take mine first. I don't want bubble gum with sugar in it as it is bad for me. Big people don't like that stuff." The child was then offered a "free" sample of the sugarfree gum which the experimenter was chewing. This special intervention was conducted on two occasions with all subjects before choice test 3 between the two types of gum was given again.
Special intervention for training generalization:

A second special intervention was implemented with S3 and S4 only, following the two month follow-up in vivo scenes. One special training session of 20 minutes was spent in retraining scenes seven, eight and nine as well as two new scenes. The new scenes and scoring criteria are as follows:

10a. You're eating lunch and you have a favorite food (ask them their favorite food). You get up to get a napkin from another table and a child at your table starts to take your food. What do you say and do?

10b. It's your turn to go to the bathroom next and another child cuts in front of you. What do you say and do?

Criteria for verbal content:

Scene 10a: "Don't take my food without asking or stop taking my food or put that food back."

Scene 10b: "Don't cut in front of me or it's my turn to go next."

Criteria for assertive action:

Scene 10a: Points to his plate where the food should go or shakes his head "no."

Scene 10b: Shakes his head "no" or points to behind him.

The training procedure was consistent with that followed for all other training scenes. In addition, it was emphasized at the end of
each scene that the child should really say and do these things if they happened to them in school or at home.

Part II

Subjects

Data were collected on the same four subjects as used in Part I. The large (entire classroom of 15 students) and small group (5 subjects) interventions were administered to additional students, but data were collected only on the four subjects used in Part I.

Experimental Setting

This intervention took place in the children's classroom. Experimenter 1 conducted the large group training sessions in the classroom with the entire class of 15 students and tested S1 and S2 on alternate days in a private testing room located in another area of the building. Experimenter 2 conducted all training sessions in the classroom in an enclosed area where she could work privately with S3 and S4 as well as three other classmates from that room.

Behavioral Assessment

A pretest of 20 items was given to all four subjects before group intervention was initiated. The procedure involved: Reading the question verbatim, waiting for a response, prompting them by repeating the question again. The latter strategy was done in order to prompt a second answer from the child. The test items and acceptable answers are as follows:
Pretest:

1. What does sugar do to your teeth? (Decays and rots them, makes holes in them, causes them to hurt or ache, makes them fall out, gives you cavities.)

2. What happens to teeth with a lot of cavities in them? (Dentist has to pull them out, they fall out, they hurt or ache, they turn brown, they get holes in them, have to be drilled.)

3. Why do you need to brush your teeth after eating? (To get the food out, to stop them from decaying, to clean them, so your breath feels clean, so you don't have to go to the dentist, because you eat candy sometimes.)

4. Why is sugarfree gum better for you than gum with sugar in it? (It does not cause decay, tastes good, does not rot your teeth, dentists recommend it, so your teeth won't fall out, so they won't need to be drilled.)

5. Why is Product 19 or Total cereal better for you than Froot Loops cereal? (Builds strong bodies, does not have sugar, has lots of vitamins and minerals, does not rot your teeth.)

6. Why is juice much better for you than Kool-Aid? (Has more vitamins, builds strong bodies, does not rot your teeth, gives you energy, doesn't have sugar.)

7. Why is milk much better for you than pop with sugar in it? (It builds strong teeth and bones, contains calcium in it, it's good for your skin, gives you energy, has vitamins, has lots of protein, makes you strong.)
8. What will smoke do to your lungs if you inhale it? (Makes them dirty, makes it harder to breathe, you can't run and play as well, you could get cancer.)

9. What diseases can heavy smoking cause? (Diseases that make it hard to breathe, diseases that make you cough, cancer, emphysema, bronchitis, lung diseases.)

10. How does smoking affect your ability to run and play? (Makes it harder to breathe, slows you down, may cause your lungs to hurt, causes you to pant or breathe loudly, have less strength, have less energy.)

11. When should you take medicine? Who should you take it from? (Never by yourself or from strangers.) (From a doctor, nurse, parent or teacher.)

12. What could happen to you if you sneak some medicine? (You could become very sick, and maybe even die, you could get a headache, or vomit, you could harm your body.)

13. What should you do if you sneak medicine and don't feel good? (Go tell your mom, or dad or teacher immediately, do not feel ashamed to tell someone, do not just go and hide, do it right away.)

14. What could happen to you if you ate some soap or cleaning products? (Could get real sick, might throw up, could get a stomach ache, get a headache, could die, have to go to the doctor.)

15. What could happen to you if you ate too many vitamin pills or took medicine you are not supposed to take? (Might have to go to the hospital, could get real sick, sometimes you could die from it, have to go to the doctor, might throw up.)
16. Why does our body need to rest? (To become strong again, to feel good, to get energy for work and play.)

17. What happens to your body if you do not go to bed early enough at night? (You're tired the next day, can't learn as well, you don't feel well, you're cranky and unhappy, your eyes hurt, your head hurts.)

18. Why do we take naps in school? (To rest our bodies, so we are ready for afternoon activities, to feel good, so our bodies can grow, for energy, to build strong bodies, so you don't get too tired!)

19. Why do we go out for recess? (Because exercise is good for our bodies, to get fresh air, to build up our muscles, so we can feel better, so we can work harder in the room.)

20. Why is it bad to sit and watch T.V. for a long time? (You can hurt your eyes, you learn much more from books and other people, you can't talk to the T.V., you aren't getting the exercise you need.)

Scoring of items was based on a maximum of two points per item which required two of the listed responses. One point was assigned for one appropriate response per test item. A percentage of points obtained out of 40 possible points was then calculated. All test items were administered as a baseline check before group instruction on the health units was initiated. Thereafter, items 1 to 7 were readministered after Unit 1 was taught, and items 8 to 15 were readministered upon completion of Unit 2. The entire 20 item test was readministered after Unit 3 was taught.
Procedure

Following a baseline assessment, Unit 1 was taught. It involved instruction in the concept of healthy vs. unhealthy with special emphasis on the subset of sugarfree products vs. sugar products. Special teaching props included: Diagram of a tooth, diagram of the human body, large boxes of Product 19, Total, Cheerios and Froot Loops cereals, bottles of milk and orange juice, Kool-Aid, packages of sugarfree gum and bubble gum.

Large group teaching sequence:

1. Show the diagram of the tooth. In lecture format, explain that it can develop little cavities from food containing sugar.

2. Discuss all correct responses to the test questions and then utilize active responding to reinforce these responses in the children's repertoire. Do this by paraphrasing the test question and requiring them to repeat the response orally as an individual about one-half of the time and as an entire class one-half of the time.

3. This basic lecture-active responding format is continued until all pertinent responses to test questions are covered along with a logical explanation for each appropriate response. Teaching time per unit is approximately 30 minutes.

Small group teaching sequence:

In this training approach, both the trainer and the children were familiar with the DISTAR method of instruction (Becker, Engelmann and
Thomas, 1975; Becker and Engelmann, 1977). A group of six children sat in a semi-circle around the trainer, who first gave a general introduction of the area to be taught (i.e., sugar vs. sugarfree, smoking and medicine, exercise and rest). Then, the trainer stated a fact pertaining to one of the training objectives for that particular area. For example, in the sugar vs. sugarfree area one of the training objectives was to have the children learn what sugar does to their teeth. The trainer stating a fact concerning the objective said, "Sugar makes holes in your teeth." Subsequently, using a signal to cue group responding, the trainer restated the fact in question form asking, "What does sugar do?" The children responded on signal, "Makes holes in your teeth." After several repetitions of this, the trainer asked the children first as a group and then individually to "say the whole thing." The children responded with the complete statement, "Sugar makes holes in your teeth." If the children made mistakes or did not respond, the trainer led them in the correct response and then repeated the question. The training continued in this fashion until all the objectives were covered and all children were responding firmly, between 20 to 30 minutes.

On the day following Unit 1 instruction, a test was administered including items 1 to 7 which covered the material taught in Unit 1. If any items were missed by the four subjects, that material was reviewed at the beginning of training day 2 prior to introducing new material. After the oral examination was completed, a choice test was administered. The subject was offered a choice between a small box of Product 19 and a small box of Frosted Flakes.
Training day two involved instruction in Unit 2. The concept of healthy vs. unhealthy was taught with appropriate examples for each category. Healthy referred to smoke free air and appropriate intake of medication and vitamins. Unhealthy referred to smoke filled rooms, inappropriate use of medicine and ingestion of cleaning products and other poisons. Training and testing for this unit was accomplished the same as for Unit 1. Props for this unit involved: A diagram of the human lungs, bottles of pills, various cleaning products.

Testing for mastery of Unit 2 material was done the next day by administering items 8 to 15 of the pretest. A choice test was also given at this time between a small can of orange juice and a package of Kool-Aid.

Training day three involved instruction in Unit 3. Healthy vs. unhealthy was again taught with more examples presented in order to teach the discrimination between the two concepts. Examples of healthy involved proper rest, exercise and minimal T.V. watching. Examples of unhealthy activities involved the direct opposites of the healthy examples. No props were necessary for this unit.

Testing day three, done the next day, involved an administration of the entire 20 item health test used as the pretest. Experimenter 1 administered it on a one-to-one basis to S3 and S4 and Experimenter 2 did so with S1 and S2.

The entire 20 item test of health-related facts was administered again at two and four month intervals following completion of training in Part II of the study. Experimenter 1 assessed S3 and S4 whom she had trained and Experimenter 2 tested S1 and S2 who were also trained by her.
CHAPTER III

RESULTS

Reliability data taken from testing sessions ranged from 88 to 100 percent with a mean reliability score of 93.75 percent. Experimenter 1 took reliability data on Experimenter 2 while an independent observer did reliability checks on Experimenter 1.

Results for S1 on training scenes, as presented in Figure 1, indicate significant increases in each component of assertive behavior as it was trained. All data points represent averages across all scenes for each session. The ratio of eye contact to speech duration was 56 percent during baseline and 86.5 percent averaged across all training scenes. Assertive content was measured at 35.71 percent during baseline and 75.0 percent averaged across training sessions. Assertive action was equivalent to 18.0 percent during baseline and increased to 70.0 percent during intervention. Generalization scene data, in Figure 2, shows similar trends. Ratio of eye contact to speech duration increased from a baseline of 56 percent to an average of 96 percent during intervention, assertive content changed from 16.66 percent to 83.16 percent, and assertive action increased from 4.71 percent to 33.33 percent. The 33.33 percent is an average of three data points, but on the last test session she actually obtained a score of 100 percent on assertive actions on the generalization scenes.
Figures 1 and 2. Training scenes for Subject 1 show data for baseline, social skills training and follow-up at two and four months. The multiple baseline design indicates the following order of intervention: 1) eye contact during sessions 4-13, 2) assertive content during sessions 8-13, 3) assertive action during sessions 11-13.

Generalization data is reported in a similar format beginning after three sessions of training were completed.
A second measure of generalization of skills from training sessions to the general environment involved in vivo tests within the classroom. That is, the teacher was requested to ask a classmate to approach the subject in order to ascertain if the subject would be assertive in a realistic situation. Results are as follows:

Test 1: The confederate was requested to walk up to S3 and take a toy away from her which she had been playing with. The following was reported in writing by the teacher. "Liz approached Rhonda while she was reading a magazine. She tried to grab it from her, but Rhonda looked up at her and said, 'No, Liz, give it back.' Rhonda held onto it and wasn't going to give it back."

This scene was scored as assertive since she was noncompliant with the shill and made an assertive comment.

Test 2: The shill was instructed by the teacher to approach Rhonda and take her snack from her. The student was told that they were only to do this on this one occasion because the teacher wanted to see what would happen. The following was reported: "The shill went to grab her cookie, but Rhonda put her hand over it. Then Rhonda said to her, 'I'll share it with you Liz.'"

This behavior was scored as assertive as she did not allow Liz to take her snack without permission. The suggestion to share could have been a generalization from training, since they were taught to offer the other child more juice, in training scene 1, rather than to allow them to drink out of their cup.

Test 3: This test involved having another child cut in front of the subject who was standing first in line. Again, the shill was
asked to do this only this one time so the teacher could see what would happen. The following results were reported in writing by the teacher: "She called teacher, teacher Jimmy got in front of me. But then Rhonda got in front of the shill."

The final act was scored as assertive since she took her place back in line. However, the children were trained to deal with situations like this by themselves, rather than relying on adults. Since the teacher did not respond to her request, she did finally cope with the situation herself.

A third form of generalization assessment involved offering the subjects a choice between bubble gum containing sugar and sugarfree bubble gum and between Product 19 cereal and Froot Loops cereal which contains considerable amounts of sugar. This procedure was done at the end of a training or testing session after awarding the usual toy for "working hard that day." The rationale for this test was to see if there was a consistency or discrepancy between their verbal behavior and their nonverbal behavior. That is, they were taught in scenes 4 and 5 to assertively choose sugarfree gum over bubble gum containing sugar and to choose Product 19 over Froot Loops. Therefore, the objective for this test was to observe if nonverbal behavior would coincide with the verbal behavior which they emitted. Results for S1 are as follows:

Test 1: Chose bubble gum with sugar.
Test 2: Chose bubble gum with sugar.
Test 3: Chose sugarfree bubble gum.
Test 4: Chose sugarfree bubble gum.
Test 5: Chose sugarfree bubble gum.
Test 6: Chose Froot Loops.
Test 7: (2 month follow-up) Chose sugarfree bubble gum.
Test 8: (4 month follow-up) Chose sugarfree bubble gum.

As the data indicates she initially chose the gum containing sugar. A special intervention was then implemented. It consisted of the Experimenter modeling chewing sugarfree bubble gum while stating they did so in order to prevent tooth decay and because it tasted good. A "free" sample was then offered to the child. Also, both types of gum were rolled and shaped in a similar form and wrapped in aluminum foil in order to control for differences in shape, color of wrapper and size. After these interventions were made between tests 1 and 2, she consistently chose the sugarfree gum on three consecutive occasions which was defined as the criterion for success. Froot Loops and Product 19 were offered once and she chose Froot Loops. Further intervention was delayed until Part II of the study.

The last measure of change for Part I consisted of administering the Jesness Behavior Rating Scale as a pre-posttest. Three teacher aides completed this 80 item checklist during baseline week of Experiment I and upon completion of intervention for Part I of the study. The same raters were used on both pre and posttests and the three scores were averaged and graphed as pre and posttest results. A correlated "t" test was run on all subscales of the test which varied by three or more raw data points. No significant differences were found, however, between pretest and posttest ratings for SI on the various categories of social behaviors.
Follow-up data at two months on training scenes indicated 92 percent ratio of eye contact to speech duration, 100 percent of assertive content, 100 percent of assertive action. Generalization scenes revealed 91 percent eye contact during speech, 100 percent assertive content and 100 percent assertive actions. A choice test at this time indicated a preference for sugarfree bubble gum over bubble gum with sugar in it.

In vivo tests of generalization at two month follow-up indicated the following:

Test 1 (toy scene): "When a male peer took her toy, she stomped and said, 'Give it back to me.' He returned the toy immediately."

This is an assertive action and comment as she retrieved her toy expediently without the use of verbal or nonverbal aggression.

Test 2 (snack scene): "When another child started to take her snack she said, 'No, look what Ann is doing.' She then held her hands out to stop the child. Later she shared some with the other child."

This is an assertive comment and action. The latter act of sharing may be a generalization from training scene 1.

Follow-up data at four months on training scenes indicated: 100 percent ratio of eye contact to speech duration, 90 percent of assertive content, 90 percent of assertive action. Generalization scenes revealed 100 percent eye contact during speech, 100 percent assertive content and 100 percent assertive action.

Experiment II data, shown in Table 1, revealed a 38.75 percent score of correct responses on the pretest. After Unit 1, on sugar vs. sugarfree products was taught, items 1 to 7 were administered. The
Table 1. The results of the 20 item health-related test reported as percentage of correct responses.
<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Unit 1</th>
<th>Unit 2</th>
<th>Posttest</th>
<th>2 month follow-up</th>
<th>4 month follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td>38.75%</td>
<td>85.68%</td>
<td>93.75%</td>
<td>92.5%</td>
<td>85.0%</td>
<td>90.0%</td>
</tr>
<tr>
<td>Subject 2</td>
<td>18.75%</td>
<td>89.28%</td>
<td>90.63%</td>
<td>86.25%</td>
<td>72.5%</td>
<td></td>
</tr>
<tr>
<td>Subject 3</td>
<td>30.0%</td>
<td>53.57%</td>
<td>62.5%</td>
<td>85.0%</td>
<td>85.0%</td>
<td>92.5%</td>
</tr>
<tr>
<td>Subject 4</td>
<td>7.5%</td>
<td>92.85%</td>
<td>87.5%</td>
<td>87.5%</td>
<td>90.0%</td>
<td>95.0%</td>
</tr>
</tbody>
</table>
obtained score on this testing was 85.68 percent correct responses. Items 8 to 15 were given the day following instruction on Unit 2 on harmful substances and she obtained a score of 93.75 percent. After Unit 3, on rest and exercise, was taught the entire 20 items were given the next day. This result was 92.5 percent correct responses. Therefore, the subject's pre and posttest scores show an increase of 53.75 percent of correct responses on health-related knowledge.

Two choice tests were also conducted during unit testing. Following Unit Test 2 she was given a choice between a small box of Product 19 and Frosted Flakes. She chose the Product 19 cereal. After Unit Test 3 she had a choice between a package of Kool-Aid and a can of orange juice. She chose the orange juice. Results are displayed in Table 2.

Follow-up data at two months revealed a score of 85 percent correct responses on the 20 item test. The choice test indicated a preference for Product 19 over Frosted Flakes cereal.

Results of follow-up data at four months indicate 90 percent correct responding on the entire 20 item health test.

Subject 2's results for training scenes as shows in Figure 3, on ratio of eye contact to speech duration, indicate a 22.0 percent average during baseline in comparison to an 82.9 percent average during intervention. Assertive content was measured at 10.85 percent prior to intervention and 90.0 percent during intervention. Assertive action averaged 9.0 percent during baseline and 53.33 percent during intervention. The score of 53.33 percent is an average of three data points. But inspection of the graph indicates that she obtained
Table 2. The results of choice tests on healthy vs. unhealthy foods. Choices involved Product 19 vs. Frosted Flakes and orange juice vs. Kool-Aid.
Table 2

<table>
<thead>
<tr>
<th>Subject</th>
<th>Choice Test 1</th>
<th>Choice Test 2</th>
<th>2 month follow-up</th>
<th>4 month follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject 1</td>
<td>Product 19</td>
<td>Orange Juice</td>
<td>Product 19</td>
<td></td>
</tr>
<tr>
<td>Subject 2</td>
<td>Frosted Flakes</td>
<td>Orange Juice</td>
<td>Product 19</td>
<td></td>
</tr>
<tr>
<td>Subject 3</td>
<td>Frosted Flakes</td>
<td>Orange Juice</td>
<td>Frosted Flakes</td>
<td>Frosted Flakes</td>
</tr>
<tr>
<td>Subject 4</td>
<td>Product 19</td>
<td>Orange Juice</td>
<td>Product 19</td>
<td>Product 19</td>
</tr>
</tbody>
</table>
90 percent on the last data point after completing three training sessions on this component. Results of generalization scenes, as depicted in Figure 4, are as follows: ratio of eye contact to speech duration averaged 21.66 percent during baseline and 96.28 percent during intervention, assertive content averaged 4.5 percent before intervention and 66.83 percent after intervention, assertive action averaged 4.5 percent during baseline and 44.33 percent during intervention. Again, this percent is the average of three scores. By the last training session, after which all 10 scenes had been trained on assertive action, the result was 100 percent on assertive actions.

Results of the in vivo tests of generalization are as follows:

Test 1 (toy scene): "A child approached and took Tonia's clay away from her. Tonia said nothing for five seconds and then said the child's name. She waited another three seconds and said, 'Gimme that,' which the child did. Fifteen seconds later Tonia said, 'Boy, oh boy, you're a naughty boy.'"

This response was scored as assertive since she was noncompliant and requested a change in the other child's behavior, e.g. that they return the toy.

Test 2 (snack scene): "Tonia said, 'No, don't,' and did not allow her snack to be taken from her."

This response is assertive as it is noncompliant with the act of taking her food.

Test 3 (line scene): "Tonia said, 'You go back there.' The shill said, 'No,' Tonia said, 'Yes,' the shill said, 'No.' Tonia said, 'Yes,' again and they (shill) finally went back."
Figures 3 and 4. Training scenes for Subject 2 show data for baseline, social skills training and follow-up at two and four months. The multiple baseline design indicates the following order of intervention: 1) eye contact during sessions 4-13, 2) assertive content during sessions 8-13, 3) assertive action during sessions 11-13. Follow-up data is shown at two months, but was unobtainable at four months.

Generalization data is reported in a similar format beginning after three sessions of training were completed.
Figure 3. TRAINING SCENES (S2)

Figure 4. GENERALIZATION SCENES (S2)
This response is assertive since she was noncompliant and requested a change in the shill's behavior persistently until they complied with her.

The results of the choice tests of generalization are as follows:

Test 1: Chose bubble gum with sugar.
Test 2: Chose bubble gum with sugar.
Test 3: Chose sugarfree bubble gum.
Test 4: Chose sugarfree bubble gum.
Test 5: Chose sugarfree bubble gum.
Test 6: Chose Froot Loops cereal.
Test 7: (2 month follow-up) Chose sugarfree bubble gum.

The special intervention involving modeling and reinforcer sampling was conducted between tests two and three and resulted in three consecutive choices of the sugarfree gum. This subject, as did the other three subjects, chose Froot Loops over Product 19. A special intervention, to reverse this trend, was utilized in Experiment II and will be discussed in the Part II section.

The correlated "t" test run on individual sociability factors of the Jesness Behavior Rating Scale revealed no significant differences at the .05 level between pre and posttest results.

Follow-up data on Experiment I at two months yielded the following training scene results: 76.22 percent eye contact during speech, 89 percent assertive content, 78 percent assertive actions. Generalization scenes showed 94.5 percent eye contact, 83 percent assertive content and 50 percent assertive actions.
In vivo tests of generalization, at a two month follow-up at home, indicated the following:

Test 1 (toy scene): "Shannon took her toy away. She said, 'Stop it, give it back to me' and then she took it back."

This is an assertive response as it shows noncompliance and a request for a change in behavior. Taking the toy back is an assertive action.

Test 2 (snack scene): "Shannon took Tonia's cake. She said, 'No, don't eat mine,' and took it back."

This result is assessed to have assertive content and assertive action as she refused to comply with her sibling's behavior of taking her food.

It was necessary to conduct these in vivo scenes of generalization at home since the subject was no longer enrolled in school at this time. These results are reported by the parent to the experimenter via phone. The parent was asked to report what occurred in these two situations when they occurred spontaneously with a younger sibling.

Experiment II results, shown in Table 1, yielded the following: Pretest results yielded 18.75 percent correct responses, test 1 indicated an 89.28 percent score, test 2 a 90.63 percent score and posttest results were 86.25 percent on all items. Performance on the test increased by 67.5 percent on knowledge of health-related facts.

On choice tests, displayed in Table 2, she chose Frosted Flakes over Product 19 and took orange juice over Kool-Aid.

Follow-up at two months indicated a 72.5 percent score of correct responses on the entire 20 item test. When given a choice between Product 19 and Frosted Flakes she chose a box of Product 19.
S3's results for training scenes, as displayed in Figure 5, on ratio of eye contact to speech duration indicate an average of 40.66 percent during baseline and an average of 81.5 percent following intervention. Assertive content averaged 40 percent during baseline and 88.33 percent during intervention. The baseline average for assertive action was 16 percent with an average increase to 76.66 percent after intervention. A percentage of 90 was reached during the last training session after all 10 scenes were trained. Results for generalization scenes in Figure 6 are as follows: Ratio of eye contact to speech duration increased from 40.66 percent during baseline to 77.14 percent during intervention, assertive content changed from a baseline of 29.5 percent to 72.16 percent during intervention, assertive action increased from a baseline percentage of 7.28 to an intervention averaged percentage of 50. It should be noted that a 100 percent criterion for assertive action was met on the last trial after all scenes had been trained on this component.

Results of the in vivo tests of generalization are as follows:

Test 1 (toy scene): "Bianca took some clay from Ned. He immediately became upset. He did not grab the clay, but just looked at her. Maurie told Bianca to ask Ned for it in a nice way and to say 'Please.' Ned then gave her some clay."

This result is not an assertive action by Ned as he should have verbally requested that she return it or told her, without the necessity of a prompt from the teacher's aide, to ask for things before taking them.
Figures 5 and 6. Training scenes for Subject 3 show data for baseline, social skills training, and follow-up at two and four months. The multiple baseline design indicates the following order of intervention: 1) eye contact during sessions 4-13, 2) assertive content during sessions 8-13, 3) assertive action during sessions 11-13.

Generalization data is reported in a similar format beginning after three sessions of training were completed.
Figure 5.

TRAINING SCENES (S3)

Figure 6.

GENERALIZATION SCENES (S3)
Test 2 (snack scene): "Sean took Ned's milk cup. Ned hit Sean's hand, with the cup in it, and called Maurie (teacher's aide) who did not respond. Ned stood up, tried to take the cup from Sean and cried. Then Sean gave him the cup back."

This interaction is scored as aggressive since there was hitting and crying involved.

Test 3 (line scene): "Ned extended his arm 90 degrees from his body and tried to keep Jim from passing. When Jim finally got in front of him he said, 'Hey, you're not the leader.'"

This result is scored as assertive because he made an assertive action and comment.

Results of the choice tests of generalization are as follows:

Test 1: Chose bubble gum with sugar.
Test 2: Chose bubble gum with sugar.
Test 3: Chose sugarfree bubble gum.
Test 4: Chose sugarfree bubble gum.
Test 5: Chose sugarfree bubble gum.
Test 6: Chose Froot Loops cereal.
Test 7: (2 month follow-up) Chose sugarfree bubble gum.
Test 8: (4 month follow-up) Chose sugarfree bubble gum.

The special intervention involving modeling and reinforcer sampling was conducted between tests two and three and resulted in three consecutive choices of sugarfree gum. On one occasion, when given a choice between Product 19 and Froot Loops, he chose the later.

Results of the Jesness Behavior Rating Scale indicated a significant change, at the .05 level, in the unobtrusiveness scale in the...
favorable direction. This finding suggests he was less inclined to force himself upon others after social skills training.

Follow-up data on Experiment I at a two month interval yielded the following results for training scenes: 78.8 percent eye contact during speech, 100 percent assertive comments and 100 percent assertive actions. Generalization data yielded 80.7 percent eye contact during speech, 90 percent assertive comments and 90 percent assertive actions.

In vivo tests of generalization at the two month follow-up revealed:

Test 1 (toy scene): A shill took his toy and his response was to scream at the child.

This is not an assertive response, but is more similar to aggression.

Test 2 (snack scene): When the shill took his sucker he screamed and said, "He's taking my sucker."

This is not an assertive response rather it is aggressive, in reference to the screaming, and passive, in his attempt to enlist the teacher's help.

Test 3 (line scene): When another child took his place in line he pushed back into the spot, but said nothing.

This is a quasi-assertive action, but lacks an assertive comment which is critical in a situation such as this.

In vivo tests of generalization at the three month follow-up revealed:

Test 1 (toy scene): "Ned said, 'Why did he do that?'"
This is an unassertive response as it does not show noncompliance or request a change in behavior by the peer.

Test 2 (snack scene): "Ned said, 'Give me it.'"

This is an assertive comment as it implies noncompliance with the other child's behavior and requests a change in their behavior.

Test 3 (line scene): "He put his arm out so the child could not cut in front of him."

This is definitely an assertive response. Since it blocked the other child's action, it was not necessary to make an assertive comment.

Follow-up at a four month interval revealed the following training scene results: 82.58 percent eye contact during speech, 100 percent assertive comments and 90 percent assertive actions. Generalization scene data indicated 54.69 percent eye contact during speech, 100 percent assertive comments and 100 percent assertive actions.

In vivo follow-up scenes at four months revealed the following results:

Test 2 (snack scene): "When another child took a piece of Ned's food from his plate he said, 'Give it back' in a moderate tone of voice. The child complied immediately."

This is definitely an assertive comment and did not necessarily require an assertive action since results were expedient.

Test 3 (line scene): "A classmate stepped in front of Ned and he said, 'I was here first.' The child then stepped back."

This is also an assertive comment since he requested a change in behavior on the part of the other child.
Experiment II results, in Table 1, indicated a 30 percent score on the pretest, a 53.57 percent score on test 1, a 62.5 percent score on test 2, and an 85 percent score on the posttest. Test performance increased by 55 percent on health-related knowledge.

Choice tests indicated a preference for Frosted Flakes over Product 19 and for orange juice over Kool-Aid.

Follow-up at two months revealed a score of 85 percent correct responses on the 20 item test. When given a choice between Frosted Flakes and Product 19, he chose the Frosted Flakes cereal.

Follow-up at four months indicated a score of 92.5 percent correct responses on the posttest. He chose Frosted Flakes when given a choice between Product 19 and Frosted Flakes.

S4's results for training scenes, displayed in Figure 7, show an increase from 32.66 percent during baseline to 68.6 percent after intervention on ratio of eye contact to speech duration. Assertive content rose from 10.0 percent to 80.0 percent and assertive actions increased from a baseline of 23.0 percent to 63.33 percent. Generalization results, in Figure 8, indicate: Ratio of eye contact to speech duration increased from 32.66 percent to 60.57 percent, assertive content went from 2.5 percent to 47.66 percent and assertive action increased from 14.28 percent to 50.0 percent with the last training session reading a 67 percent level.

Findings from in vivo tests of generalization are:

Test 1 (toy scene): Binker took a crayon from Jeremy and he stood up and said, "No" and took the crayon back.

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Figures 7 and 8. Training scenes for Subject 4 show data for baseline, social skills training and follow-up at two and four months. The multiple baseline design indicates the following order of intervention: 1) eye contact during sessions 4-13, 2) assertive content during sessions 8-13, 3) assertive action during sessions 11-13.

Generalization data is reported in a similar format beginning after three sessions of training were completed.
This result is scored as assertive since he made an appropriate action and refused to comply with the other child's behavior. It might be interpreted as a generalization from training scene 7 which described a very similar scene with a toy.

Test 2 (snack scene): Another child took Jeremy's cup and Jeremy said nothing, but reached over and took the other boy's cup and filled it with milk for him.

Although no assertive verbal behavior occurred, the act of filling the other child's cup for him appears to be a generalization from scene 1. During training sessions the subject was taught to refill another child's cup for him rather than allowing him/her to spread cold germs by drinking from the subject's cup.

Test 3 (line scene): Another kid cut in front of Jeremy and he didn't react. Jeremy just started talking to the other kid as though nothing had happened. This response is subassertive as he said and did nothing to show noncompliance and/or to request that the other child alter his behavior, e.g. go to the back of the line.

Results of the choice test are as follows:

Test 1: Chose sugarfree gum.
Test 2: Chose bubble gum with sugar.
Test 3: Chose sugarfree gum.
Test 4: Chose sugarfree gum.
Test 5: Chose sugarfree gum.
Test 6: Chose Froot Loops cereal.
Test 7: (2 month follow-up) Chose sugarfree gum.
Test 8: (4 month follow-up) Chose sugarfree gum.

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As with all other subjects, a special intervention involving modeling and reinforcer sampling was conducted between tests two and three. The result was three consecutive choices of the sugarfree gum. He did, however, choose Froot Loops cereal over Product 19 when given the choice on one occasion.

Results of the pre and posttest measures taken with the Jesness Behavior Rating Scale indicated two significant correlated "t" tests. Responsibility increased in the positive direction and anger control increased in the positive direction.

Follow-up data at two months indicated the following training scene results: 65.39 percent eye contact during speech, 80 percent assertive comments, and 30 percent assertive actions. Generalization data revealed 71.38 percent eye contact during speech, 66.66 percent assertive comments, and 33.33 percent assertive actions. At the end of this session he was offered a choice between bubble gum containing sugar and sugarfree bubble gum. He chose the sugarfree gum.

In vivo tests of generalization at a two month follow-up revealed:

Test 1 (toy scene): "Jeremy said, 'He took my car.'"

This is a subassertive response as he did not verbalize noncompliance and/or request a change in behavior on the part of the other child.

Test 2 (snack scene): "He just looked at the other child."

This is also subassertive as it lacks a request for a change in behavior by the other child.

Test 3 (line scene): There was no opportunity to run this test as Jeremy was never first in line and the new teacher did not formally line them up and choose line leaders as the previous teacher had done.
In vivo follow-up scenes at three months revealed:

Test 1 (toy scene): "Jeremy said, 'Hey, that's mine.'"
This is a quasi-assertive response as it implies noncompliance. He should also have requested a change in behavior, e.g. return of the toy.

Test 2 (snack scene): "He said, 'Can I have it back.'"
This is an assertive comment as it requests a change of behavior, e.g. return of the food.

Test 3 (line scene): "He said, 'I was here first.'"
This is an assertive comment as it shows noncompliance and implies a change in behavior.

Follow-up data on training scenes at four months indicated 78.8 percent eye contact during speech, 100 percent assertive comments, and 50 percent assertive actions. Generalization scene data showed 66.19 percent eye contact during speech, 83 percent assertive comments, and 50 assertive actions. When offered a choice between sugarfree bubble gum and bubble gum containing sugar, he chose the sugarfree gum.

In vivo follow-up scenes at four months revealed the following results:

Test 2 (snack scene): "When a classmate took a snack from his plate he looked at the teacher and said, 'Why did he do that?'"
This is a subassertive comment and no action occurred. The teacher reported that it appeared that Jeremy knew the situation was staged.
Test 3 (line scene): "When another child stepped in front of him in line, Jeremy screamed, but said nothing."

This is an unacceptable response since he should have requested the other child to change his behavior, i.e. go to the back of the line.

Results of Experiment II indicated a pretest score of 7.5 correct responses, a Unit 1 score of 92.85 percent, a Unit 2 score of 87.5 percent, and a posttest score of 87.5 percent. There was an increase of 80 percent from pre to posttest results.

Choice tests between Product 19 and Frosted Flakes indicated a preference for Product 19. When offered a choice between orange juice and Kool-Aid, he chose the orange juice.

Follow-up at two months on the complete 20 item test revealed a score of 90 percent correct responses. When offered a choice between Product 19 and Frosted Flakes, he chose a box of Product 19 and said, "I want it for breakfast on Saturday."

Follow-up at four months on the complete 20 item test resulted in a score of 95 percent correct responses. When offered a choice between Product 19 and Frosted Flakes, he chose the Product 19.

Results for all four subjects on the three components of assertive behavior are displayed in Figure 9. Data points are averages of all data collected within each of the three phases. The data show a significant increase in eye contact, assertive content and assertive actions for all subjects from the baseline to training phases. Maintenance is indicated at two and four month intervals for most component behaviors on most of the subjects.
Figure 9. Results are condensed into four data points including: 1) three baseline days, 2) ten training sessions, 3) follow-up sessions at two and four months following training completion. Data are averaged separately for each of the four subjects and displayed according to order of training of social skills components, i.e. eye contact, assertive content, assertive action.
Figure 9.
Training & Generalization
Scene Results Averaged

S₁ = 56%, 91.25%, 91.5%, 100%
S₂ = 21.83%, 89.59%, 85.36%, ---
S₃ = 40.66%, 79.32%, 79.75%, 68.63%
S₄ = 32.66%, 64.58%, 68.38%, 72.49%

S₁ = 26.18%, 89.08%, 100%, 95%
S₂ = 7.68%, 78.41%, 86%, ---
S₃ = 34.75%, 80.25%, 95%, 100%
S₄ = 6.25%, 63.83%, 73.33%, 91.5%

S₁ = 11.35%, 51.65%, 100%, 95%
S₂ = 6.78%, 48.83%, 64%, ---
S₃ = 11.64%, 63.33%, 95%, 95%
S₄ = 18.64%, 56.66%, 31.66%, 50%

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CHAPTER IV

DISCUSSION

Results of the multiple-baseline analysis of social skills training, shown in Figures 1 through 9, indicated significant acquisition and maintenance of targeted components of assertive behavior for all four subjects (S1, S2, S3 and S4). The targeted responses were independent of each other as changes occurred in each only after training on that particular behavioral component. The changes observed on ten training scenes were also present on the six generalization scenes. In general, these changes persisted at two and four month follow-ups. Data also indicated generalization across trainers since S1 and S2 were trained by a female graduate associate, whereas S3 and S4 were trained by the author. There were no noticeable differences in rate of learning or maintenance between sexes as S1 and S3 showed the most favorable results of training and maintenance and one was a female and the other a male. S2 and S4 learned and maintained at a slightly lower rate. S2 was a female and S4 was a male. These findings support previous results obtained by Bornstein et al. (1977), Beck et al. (1978), Whitehill (1978), and Bornstein et al. (1978).

The choice test results indicated consistency between verbal behavior and nonverbal behavior, e.g. they chose the item which they were trained in scene 4 to take. However, it was necessary to
implement a special intervention in addition to the training scenes in order to consistently obtain the favored result. It appears that simply training them to "parrot" the response is not sufficient to cause them to choose the sugarfree gum. This is likely due to historical factors such as having bubble gum with sugar in it available to them, seeing it advertised on T.V. and elsewhere and having tasted it. However, these factors were overcome when the experimenter modeled chewing sugarfree gum for them, gave a rationale why they did so and then offered them a free taste. These results were maintained at the two and four month follow-up for all subjects, even though all had initially preferred bubble gum containing sugar.

The choice test between Product 19 and Froot Loops, shown in Table 2, was another test of the consistency between verbal and nonverbal behavior. Subjects were trained in scene five to request that their mother purchase Product 19 instead of Froot Loops because it is much better for you. They were then given a choice between the two cereals at the end of a testing session and all chose Froot Loops which was contrary, of course, to what they were trained to say. Further intervention on this choice was delayed until Part II of the experiment.

A third measure of generalization involved in vivo tests within the classroom. Here specific incidents were set up by the teacher in order to evaluate if the subjects acted assertively under natural circumstances. The two female subjects, S1 and S2, acted assertively in all three situations within the classroom. This is an indicator of generalization since they were initially chosen for the study on
the basis of having a basically subassertive social skills repertoire based on their classroom teacher's judgment. Gains were maintained at a two month follow-up and stimulus generalization was shown since three of the four situations had to be set up at home as the subjects were no longer enrolled in the school program. Thus, generalization was indicated in natural settings within the classroom and at home with a sibling (S2) and a peer (S1).

The male subjects, S3 and S4, showed mixed results on in vivo tests. Immediately following training S3 reacted in a subassertive manner on the toy scene, in an aggressive manner on the snack scene and in an assertive manner on the line scene. A two month follow-up for S3 was even less favorable since he responded aggressively on the toy and snack scenes. He did take a quasi-assertive action in the line scene, but made no assertive comment. During the first set of in vivo scenes, S4 made an assertive comment and took an assertive action during the toy scene. This result could be interpreted as a generalization from scene 7 which trained a similar response to a similar situation. During the snack scene he filled the other child's cup as an alternative to the child taking his drink. This could also be interpreted as a generalization from scene 1 where they were trained to perform a similar act. On the line scene he reacted in a subassertive manner. Data at the two month follow-up revealed subassertive responses on the toy and snack scenes. Data could not be collected on the line scene as there was a turnover in staff and the current teacher did not formally choose a line leader.
A special intervention was conducted following an analysis of the data gathered on S3 and S4 at the two month follow-up. It entailed retraining on scenes 7, 8, and 9 as well as two new additional scenes. This booster training was implemented in view of the unassertive responses noted in both male subjects and on recommendations for booster treatments made in research reviews (Heimberg, Montgomery, Madsen and Heimberg, 1977, and Hersen and Eisler, 1976). It was anticipated that further training on familiar scenes and two additional scenes would facilitate generalization. The verbal instructions to really say and do these things were also expected to assist in mediating between training sessions and actual occurrences in real life settings. Data collected at a three-month follow-up showed considerable improvement in assertive responses. S3 made an assertive response to the snack scene and an assertive response to the line scene. S3's response to the toy scene remained subassertive. S4 made an assertive response to both the snack and line scenes and a quasi-assertive response to the toy scene. Thus, the booster treatment was deemed effective for these two subjects who required it.

The Jesness Behavior Checklist, given as a pre and posttest, yielded no significant differences for S1 and S2. S3 showed a significant difference on the unobtrusiveness factor suggesting he was rated as less likely to force himself upon others following assertiveness training. S4's posttest results showed a significant change in the positive direction for anger control and responsibility following assertiveness training. The test in general, however, was not a sensitive indicator for changes in behavior following training.

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This finding is not surprising in view of the inherent problems associated with teacher ratings cited by Van Hasselt, Hersen, Whitehill and Bellack (1979). They point out that such instruments depend on opportunities for teachers to observe the particular behaviors of interest, require adequate understanding of these behaviors and that such scales are not always psychometrically sound. Also, Reardon et al. (1979) found correlations between analogue measures and teacher ratings of assertiveness to be "negligible." They therefore questioned the usefulness of teacher ratings of children's social skills.

Experiment II was implemented in order to further instruct in health-related facts and as a special intervention to attempt to alter their preferences toward high vitamin cereal (Product 19) instead of cereals containing high levels of sugar (Froot Loops and Frosted Flakes). It also attempted to encourage preference for sugarfree drinks such as orange juice in place of Kool-Aid or pop. Data suggests that subjects successfully learned and maintained the health-related facts taught in the three units covering healthy vs. unhealthy substances and activities. Generalization across teaching methods (small group and large group) was also displayed as S3 and S4, who were in the large group, retained the material as well as S1 and S2, who were taught in the small group DISTAR format. The choice tests were measures of generalization from what was taught in specific units. All children preferred orange juice over Kool-Aid and three out of four chose Product 19 at follow-up. This is a significant improvement since they all chose a cereal containing considerable amounts of sugar in Experiment I. Apparently the
training given on specific scenes was not potent enough to generalize this behavior. In that situation a simple verbal behavior was taught. But a rationale was given in the unit training sessions as to why they should avoid excessive amounts of sugar and ample examples of sugarfree products and products containing sugar were also supplied. The greater depth of instruction is likely the cause of the change in behavior by the three subjects.

Future research in this area should involve parents in order to program generalization into the home setting. Rinn and Markle (1979) accomplish this by training parents in a child management program called Positive Parenting. Parents are taught such skills as pinpointing, measurement and development of effective consequences. Parents are also informed as to what social skills are being trained so that they will reinforce rather than inadvertently punish or extinguish (by ignoring them) the newly acquired social skills at home. Van Hasselt et al. (1979) concur with direct parental involvement since "generalization and durability of treatment undoubtedly will be enhanced" by involving significant others in the training program. Besides maintaining the newly acquired assertive skills, parental involvement would also increase the chances that the subjects would continue to chew sugarfree gum, consume cereal and beverages which are sugarfree and practice the other healthy habits taught in Part II of the study.

Combs and Slaby (1977) have utilized in vivo practice in the classroom in conjunction with their social skills training programs. Here the teacher instructs by telling a child exactly what to say.
and do during an actual situation as it occurs in the classroom. The teacher also positively consequates appropriate social behavior after it occurs. It would be ideal to build this into a future program since training or retraining would be accomplished in the setting where it would actually occur. Teacher involvement could be combined with individual social skills training as developed by Bornstein et al. (1977), or with group training in social skills like Ollendick (1979) reported, or in conjunction with a film or series of films such as those used by O'Connor (1969, 1972).

The age of the subject could also be extended below five years. Slaby (1976) worked with three year olds in role-playing situations in instructing social skills. In both structured practice sessions and target situations teachers and children use a doll to role-play and discuss appropriate reactions to peer behavior. They are taught such things as: 1) "saying, 'No hitting,' instead of hitting back, 2) holding onto a toy and saying 'I'm playing with this now,' instead of letting a peer grab it away, 3) telling a bossy peer, 'No, I want to do it my way,' instead of submitting." This basic technique could also be utilized in future research in conjunction with other procedures such as films and/or teacher consequation of appropriate behaviors in the classroom.

In conclusion, this study supports and extends the findings of Bornstein et al. (1977), Beck et al. (1978), Whitehill (1978), Bornstein et al. (1978) and Ollendick et al. (1979) by indicating that social skills training can be implemented with a five year old population of both subassertive and aggressive children. It also
indicates that social skills training can be utilized as a preventive strategy for dealing with physical health as well as mental health. That is, the content of the training scenes in Part I involved assertiveness in strictly social situations (line scene, toy scene, snack scene) as well as a combination of social and physical health scenes (choosing juice over Kool-Aid, Product 19 over Froot Loops, and sugarfree gum over gum with sugar). Assertiveness is thus viewed as a very basic procedure for coping with two very distinct situations and should be a part of the social repertoire of preschool children. Finally, the study shows that the skills and facts trained in both parts of the study can generalize to natural settings and are maintained over a period of months.
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