The Effectiveness of Correspondence Training in Controlling Aggressive Behavior Between Children in Play Settings

Naiel AlBkower
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THE EFFECTIVENESS OF CORRESPONDENCE TRAINING IN
CONTROLLING AGGRESSIVE BEHAVIOR BETWEEN
CHILDREN IN PLAY SETTINGS

by

Naiel AlBkower

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

Western Michigan University
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The effectiveness of correspondence training in controlling aggressive behavior between children in play settings

AlBkower, Naiel Mahmoud, Ph.D.
Western Michigan University, 1989
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Naiel AlBkower
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INTRODUCTION

Aggression refers to a variety of behaviors, e.g., fighting, threatening, arguing, hitting, kicking, and many others, along a continuum of severity (Morris, & Kratochwill, 1983). Certain biologies, external stimuli, and culture influence may increase the probability of aggressive behavior and influence its consequences. However, the probability of an individual behaving aggressively, the form, and the consequences of that aggression are often conditioned by situations and the social context in which aggressive behavior occurs (Barches, 1981). Aggression is a serious problem for children. It affects the social environment in which children play, it interferes with the child's experiences with peers, and it increases the probability of physical injury (AlBkower, 1985; Hurist, 1977). The purpose of this study was to determine the effectiveness of correspondence training in controlling aggressive behavior among children in play settings.

Buss (1961) contends that aggression is any behavior that harms or injures others and he proposed the following categories of aggression:

1. Physical behaviors: hitting, kicking, pushing, throwing objects, or pulling hair.
2. Behaviors related to property: destruction, damage, stealing, or withholding property of another.

3. Vocal behavior: screaming, teasing, shouting or swearing at another.

4. Indirect-symbolic behavior: refusing to speak or look at another, or to humiliate others by drawing, writing, or through facial and body expression.

The first behavioral studies on aggressive behavior applied the classical conditioning model, or "pain-aggression model." This model treats aggressive behavior as an unlearned response to painful stimuli, where pain is an unconditioned stimulus (UCS) and aggression is an unconditioned response (UCR). This model was applied to animals in several different studies (Adler & Hogan, 1963; Farris, Gildon, & Ulrich, 1970; Lyon & Ozolins, 1970; Scot, 1958). The results of these studies showed that aggressive behavior can be conditioned through association between unconditioned and conditioned stimuli such as electric shock and tone. For example, Farris et al. (1970) showed that the aggressive display in rats could be a conditioned response to a tone/light combination stimuli.

Studies of human aggression argue that aggressive behavior functions as a conditioned response to situational stimuli, particularly when environmental cues are associated or combined with internal excitation to
produce impulsive aggressive reaction. In this situation, aggression appears to fit the classical conditioning model rather than other learning paradigms. Berkowitz and Le Page (1967) arranged a situation in which subjects were instructed to play the role of an experimenter trying to teach other "subjects" a task. When their "subjects" made mistakes they punished them with electric shock. In the experimental condition a gun was placed on a nearby table. The gun served as a situational cue, and in its presence the experimenters punished their "subjects" more severely by applying more intense electric shock compared to when the gun was absent. This demonstrated that situational stimuli, the presence of the gun, elicited more aggressive behavior.

In the operant learning tradition some aspects of the social environment support and maintain aggressive behavior. A child's aggressive behavior is based in part upon the acquisition of responses in the general category of assertive behavior. The acquisition is based primarily upon principles of reinforcement. The reactions of other children provide the reinforcing contingencies which support the acquisition of aggressive behavior along with emotional states which provide the eliciting stimuli for the previously acquired instrumental response (Patterson, Littman, & Bricker, 1967). The conditioning history of the child may
establish incentive status for various stimuli such as food or toys which provide the basis for the acquisition of aggressive behavior through the interactions with parents, siblings, and peers at different stages and times. Aggression may occur when the child wants a toy from the parents, but he/she may not acquire it at once. The toy may then be obtained through different behaviors like asking, pushing and pulling. At the next occasion he/she may engage in similar behaviors to obtain that toy again. Later the child will generalize from parents to siblings, and may exhibit a similar behavior to obtain the toy. The child later responds to peers which provides incentive training for the child in assertive-aggressive behaviors (Patterson et al., 1967).

There is a great deal of evidence from experimental studies which indicates that children who have been rewarded for aggressive behavior, show increases in their aggressiveness toward their peers as well as toward objects. Bandura (1973), Berkowitz (1973), Feshbach (1970) and Walters and Brown (1963), demonstrated that aggressive behavior increased when reinforcement was contingent on its occurrence. Walter and Brown (1963) showed that children who were reinforced for hitting a Bobo doll in play situations used more interpersonal physical aggression than children who were not reinforced.
Behavioral theory assumes that all behaviors, normal or abnormal, are governed by the same principles. Ullman and Krasner (1965) assert that maladaptive behaviors are learned behaviors, and the development and maintenance of maladaptive behaviors is no different than the development and maintenance of any other behavior. Behavior therapists attempt to give a client insight into the factors which control and maintain his/her target behavior. They also concentrate on the assessment of the target behaviors and their environmental determinants, the antecedents and the consequences (Englander, 1986; O'Leary & O'Leary, 1977).

The operant model includes three aspects. The first is escape behavior where the termination of some aversive conditions serves to reinforce the behavior that preceded the termination. For example, a child's aggressive behavior may increase with each successful defense of some valued condition which means that the demonstration of successful fighting may increase subsequent aggressiveness (Zillman, 1979). The second aspect of the operant model is reinforcement, when the view is taken that aggression is reinforced by extrinsic reward, offensive aggression can be readily explained as being maintained by the reinforcement which follows an aggressive response. The third aspect of operant model is the discriminative stimulus. "Prior stimuli are not
irrelevant, as any stimulus present when an operant is reinforced acquires control in the sense that the rate will be higher when it's present" (Skinner, 1969, p. 7). Environmental cues serve as discriminative stimuli. In the presence or absence of these stimuli the organism may respond as indicated by the prevailing contingencies of reinforcement or punishment, which allow these environmental cues to exert control over the behavior of interest (Zillman, 1979). A child's aggressive behavior learned in one setting tends to occur in other settings due to the learning process and stimulus generalization. Different stimuli or classes of stimuli similar to those in the first situation tend to evoke the target behavior in a second situation (Patterson, 1979).

There are three major models of aggressive behavior other than operant and classical conditioning. The first model is the innate-survival model, which proposes that human aggression is a result of fighting instinct which develops over the course of evolution as a result of its benefits for species survival. The process is believed to be similar to selective breeding favoring particular species members (Bornstein, Hamilton, & McFall, 1981; Lorenz, 1966). This model suggests that aggression is a kind of inherited response found in all animals which has to be released. This model recommends that the best solution to aggressive behavior is to provide men with
opportunities to discharge their aggression instigation through participation in sports and other harmless competitive activities (Johnson, 1972).

The second model is the frustration-aggression model. Frustration is defined as blocking or thwarting some goal directed behavior. This model proposes that frustration produces emotional arousal which creates a readiness to anger and aggressive acts in the presence of suitable eliciting cues (Bornstein et al., 1981). The model also assumes that aggressive drive motivates behavior that intends to injure others, and that injuring others or damaging property reduces the aggressive drive (Clarizio & McCoy, 1983). Haner and Brown (1955), cited in Johnson (1972), manipulated frustration by promising children a prize for successfully pushing marbles through holes in the board. If the subjects failed to do so within a certain period, they had to depress a plunger and begin again. The strength of the plunger response could be measured easily, and this response served as a measure for assessing aggression. It was found that the closer the children were to finishing and getting the prize when they failed, the harder they pushed on the plunger.

Frustration aggression models have a historical importance since frustration does not always lead to aggression and it is not the only or the fastest path to aggression (Johnson, 1972).
The third model is the social learning model which asserts that aggressive responses are influenced by three major controlling factors: the stimulus that precedes the response, feedback as reinforcement or punishment effects, and cognitive processes. This model asserts that aversive experiences produce a state of emotional arousal and that the anticipated consequences of a given behavior generate motivation. The outcome of arousal and motivation may vary greatly from individual to individual depending upon a variety of factors like reinforcement history, physiological status and the social situation. According to this model children learn many aggressive responses by imitating models, especially when these role models have high status and when the child receives reinforcement for his/her aggressive behavior.

The social learning model also suggests that punishment may maintain aggressive behavior between children by providing them with examples that may be imitated. Different studies have indicated that aggressive behavior between children increased when they observe others acting aggressively (Bandura, Ross & Ross, 1961; Bankart & Anderson, 1979; Singer, Singer & Sherrod, 1980). Bandura et al. (1961) tested the effect of observing others acting aggressively on children's subsequent aggressive behavior and found that children imitated the examples of aggressive behavior.
From a behavioral perspective aggressive behavior in children has been treated by several procedures which were found to be effective in controlling children's aggressive behavior in a play setting. Extinction is one of the procedures that was used to control aggressive behavior between children. The extinction procedure is dependent on identifying and removing the contingent reinforcers of the aggressive behavior which decreases or eliminates aggression. The decrease in the target behavior will be gradual (Frankel, & Simon, 1985).

Many studies have used extinction to control aggressive behavior between children (Brown, & Eliot, 1965; Carr, Newsom, & Binkoff, 1980; Pinkston, Reese, Leblance, & Baer, 1973). Pinkston et al. (1973), for example, controlled aggressive behavior of a 3 1/2-year-old boy in a nursery classroom by instruct-ing the teacher to ignore aggressive behavior and to rescue the victim. At the same time peer interaction of a nonviolent nature was rewarded with teacher approval. The results of this study showed that this procedure led to control of the subject's aggression.

An extinction procedure may take a long time to control the target behavior, and the target behavior may be exhibited again after it has been extinguished. Unwanted behavior may be exhibited by the subject as a result of the withdrawal of reinforcement. By applying
say/do correspondence training to control aggressive behavior we may avoid the pitfalls of extinction and strengthen subject's self control which may lead to intrinsic control and better maintenance of the results.

Time-out from reinforcement is another procedure which is used extensively to control aggressive behavior. It needs a special room or isolated area where the child will receive no reinforcement. Time-out is effective only if it leads to loss of valuable reinforcers. It should be clear to the child when time out is applied and why. The rule should be set in advance and taught to and practiced with the children (Floyd, 1985).

The time-out procedure has been examined in different studies (Allison, & Allison, 1971; Mace, Page, France, & O'Brien, 1986; Zeilberger, Sampen, & Sloane, 1968) and found to be effective in controlling aggressive behavior between children. Zeilberger et al. (1968) applied time-out to a 4-year, 8-month-old boy who displayed aggressive conduct by bossing, punching and kicking other children. The result of this study showed that time-out was effective in controlling the target behavior and that the incidents of this behavior decreased almost to the zero level. When the intervention was withdrawn, however, aggressive behavior increased again to the baseline level which means that it was not maintained when contingencies were no longer in
effect. Say/do correspondence may be superior to the time-out in that the results can be maintained for longer periods (Guevremont, Osnes, & Stokes, 1986a).

Differential reinforcement of other behavior (DRO) is also used for controlling aggressive behavior in children. This procedure involves presentation of reinforcement if the target behavior has not been exhibited for a specified period (Frankel, & Simons, 1985). In applying DRO, the intervention session is divided into equal intervals and reinforcement occurs at the end of each interval in which the aggressive behavior did not occur. When the aggressive response does not occur the schedule is increased, for example, from DRO 15 seconds to DRO 25 seconds. The size of DRO interval is increased until aggressive behavior occurs very rarely or not at all and only a minimal amount of reinforcement for the non occurrence of aggressive behavior is needed (Martin & Pear, 1988).

DRO has been applied for controlling aggressive behavior between children in different studies (Bostow & Bailey, 1969; Luce, Delquadri, & Hall, 1980; Repp & Deitz, 1974). Luce et al. (1980), for example, applied DRO to control aggressive behavior in public school classrooms in two single subject experiments and found that DRO leads to a decrease in the target behavior. Applying DRO depends on explicit control, for the target
behavior may return to the previous level when the extrinsic variables are removed. On the other hand, say/do correspondence training depends on the subject's verbalization to control the target behavior. Also it is readily available and will maintain the target behavior for long periods and strengthen self control at the same time. These properties suggest that it is more humanistic than extrinsic control.

Manipulation of the environment and arranging stimulus situations such as organized games in the play settings were found to be significant in reducing the incidence of aggressive behavior. Murphy, Hutchinson, and Bailey (1983) controlled aggressive behavior when they organized games with first and second grade children on a playground in the morning prior to school time. Aggressive behavior was reported as occurring at a high rate and was considered dangerous to the children. The results of the study showed significant success in eliminating aggressive behavior through the use of organized play. Okoro (1981) got similar results in reducing aggressive behavior among children in play settings when he studied the effects of structured play versus non-structured play on aggressive behavior among preschool children. Smith (1974) and Ramsey (1986) studied the effects of the number of toys available upon the rate of aggression among children in two nursery
classes. Both studies found that increasing the number of toys available resulted in a significant decrease in aggressive behavior between children.

One of the most positive practices in behavioral intervention of controlling aggressive and other disruptive behaviors is social skills training. Social skills may be personal interaction skills like helping, sharing, smiling, greeting and speaking positively to others, or task-related skills like attending, compliance with requests and remaining on task (Cartledge & Milburn, 1978).

The training of useful and acceptable skills with children who exhibit aggressive behavior has been suggested by different researchers (Flechman, 1981; Patterson, 1974; Selman, 1976; Udwin, 1983). Patterson (1974), for example, applied stimulus control in a natural environment to control aggressive behavior with a 6 1/2-year-old boy. He constructed changes in the pattern of family interactions and trained the family members in nonaggressive interactions. The results showed a significant decrease in aggressive behavior in the home and classroom.

Slaby (1974) found that children who were trained to select and speak helpful words acted less aggressively and displayed more prosocial behavior in comparison to children who were trained to select and speak aggressive words. These data were interpreted as being consistent
with Lauria's (1961) notion regarding the controlling function of language in children over 4 years of age. Similar results also obtained by Slaby and Crowley (1977) with 3 to 5-year-old children in the classroom. These data indicate the importance of the control exerted by language in children showing aggressive behavior.

Correspondence techniques are examples of behavioral control that have both clinical and theoretical importance and have been used to control behaviors other than aggression. This technique focuses on verbal regulation as a mediator of behavior change. "Saying" is sometimes a predictor of doing (correspondence), and sometimes it is not (Stokes, Osnes & Guevremont, 1987).

In correspondence training, emphasis is often on the reinforcer which is contingent on the correspondence of say/do or do/say. Some studies suggest that the say/do sequence is more effective and works more quickly than do/say (Israel & O'Leary, 1973; Karoly & Dirk, 1977). Better control of doing might well be expected from a say/do reinforcement sequence because the reinforcer would follow the doing. On the other hand, in the do/say reinforcement sequence the reinforcer follows the saying, which may increase the saying, but has less effect on doing (Paniagua, Stella, Holt, Baer & Etzel, 1982). Guevremont et al. (1986a) tested the efficiency of antecedent verbalization and home probes for achieving
generalized verbal control of two preschool boys aged 4-years, 2-months and 4-years, 5-months. This study applied say/do correspondence training for teaching subjects to share in the classroom and to finish and return their homework. After the target responses occurred at acceptable levels, the interval between the child's verbalization and correspondence opportunities was systematically increased and home probes for generalized verbal control were conducted. The results of this study showed that the children were sharing and involved in the classroom activities even in non-training settings, and also they finished and returned the homework without any extra contingencies.

Many studies of correspondence training show that the results were maintained for a long time after the withdrawal of programmed reinforcement (Baer, Osnes, Williams & Stokes, 1985; Guevremont, Osnes & Stokes, 1986b; Rogers & Baer, 1976). Guevremont et al. (1986b), for example, applied say/do correspondence training in the classroom for teaching children peer directed talk, on task behavior, and hand raising. The results of the study show that the target behavior was maintained for 67 days after the withdrawal of programmed contingencies.

Risley and Hart (1968) applied do/say correspondence training to teach preschool children to report their play material choices at the end of the play period. Snacks
were used as a reward. Reports of the choice of play material increased without a change in the actual use of the play materials. When rewards were given only for true reports, however, there was a correspondence between the kind of play material and the reporting of that choice before it happened (say/do correspondence). In these circumstances the children's play behavior changed, and when the contingencies were placed on the verbal report, control over the choices was possible.

Paniagua et al. (1982) investigated correspondence training where reinforcement was applied either to promises to engage in a certain activity or to a series of intermediate behaviors specified for each of the target activities. Consistently higher levels of correspondence occurred after reinforcement of intermediate behaviors in comparison to the reinforcement of promises.

Correspondence training also has been extended to some social skills such as sharing and praising for teaching children prosocial behavior and enhancing academic work in the classroom (Rogers & Baer, 1976; Stokes & Baer, 1977). The literature suggests that correspondence between saying and doing applied to the control of a variety of children's behavior operates as a mediator for generalization of the response. Correspondence training and aggressive behavior have not yet been
studied. This research will investigate correspondence training effectiveness in controlling aggressive behavior among children in the play setting. The importance of this study will be derived from the control of aggressive behavior among children, the improvement of interactions between peers, the decrease in the probability of aversive interactions and improvement in social developmental patterns. This study will not aim to control aggressive behavior directly, but to control it by using a simple constructive technique which strengthens prosocial skills.
EXPERIMENT #1

This experiment attempted to control aggressive behavior between children in play settings by applying to correspondence training procedure, say/do. This is the first attempt to apply correspondence training to control aggressive behavior.

Methods

Subjects

Two 9-year-old and one 8-year-old boys, and one girl, 8-years-old served as subjects in this study. They were selected from children who attended a Club open to children residing in the Western Michigan University's campus apartment complex. The children attended the Club twice a week, on Monday and Wednesday for three hours each day, from 3:00 to 6:00 p.m.

Before selecting these subjects, approval of the study was obtained from the Human Subjects Review Board and from the Kids Club Director in the Housing Office at Western Michigan University. Two sessions of pilot observation were held to determine which children could serve as subjects in this study. As a result of the pilot observation, the children exhibiting the greatest number of instances of the target behavior were selected.
to participate in the study. Parents' approval was obtained and the informed consent forms were signed. Also, the children gave their approval and signed a special informed consent form. This form was specifically designed to inform children of 8-years-old or older about their participation as subjects in the study.

Setting

The study was conducted during the children's Club sessions. The Club met in an unoccupied apartment arranged for the specific use of the Club. Club sessions included 12 children aged 6-12 years who had different nationalities. All of the children selected could speak and understand the English language.

Club activities were conducted either inside the apartment or outside on the playground depending on the weather and the nature of the activity.

Experimental Design

An ABA reversal design which consists of baseline, intervention and follow up phases was used to detect the changes in level of the occurrence of the target behaviors due to the implementation and withdrawal of the treatment. A partial interval observation and recording of the target behaviors occurred during 2 weeks (three sessions) to identify the level of the target behavior.
prior to the implementation of the intervention. The correspondence training (intervention) phase continued for 2 weeks (four sessions) after the baseline phase ended. A follow-up phase was carried out for two sessions to identify the level of target behavior after treatment was withdrawn.

Observations and Recording

Observations were conducted while the children were engaged in their usual activities. The three hour Club sessions were divided into six, 30 minute units and from each 30 minutes a 10 minute block was randomly selected. The first 30 minutes was excluded from observation because the children sometimes arrived late. So, five blocks, ten minutes each were randomly selected for observation, one for each remaining 30 minute period. The 10 minute blocks were then divided into ten, one minute intervals. The occurrence or nonoccurrence of aggressive behavior during each minute interval was recorded. Data from observations were recorded on special forms prepared for this study (see Appendix B).

For each subject and for each one minute interval, the occurrence of aggressive behavior during that interval was recorded as a "+" and the nonoccurrence as "0."
Observer Selection and Training

Three undergraduate students, two female and one male, from Western Michigan University assigned by the Housing Office to supervise the children in the Club served as observers in this study. Two of the three supervisors directed the Club's activity each session and observed the occurrence of the target behaviors among the subjects. Observers were trained to observe and record the target behaviors, and were given a handout that included operational definitions of the target behaviors. The researcher explained and identified the target behavior and gave examples and answered observers' questions. The researcher also modeled the procedure that observers would follow when initiating the intervention. An observer and the researcher utilized role playing to assist in explaining the procedure, the expected reaction of the child, how to respond to the child and the effective application of the intervention.

Agreement between observers during training was 85%. Agreement was calculated by dividing the number of agreements by the number of disagreements for occurrence and nonoccurrence of the target behavior multiplied by 100. This level of agreement between observers was considered satisfactory because of the uncontrolled settings of the experiment.
Reliability

Reliability checks were obtained for one-third of the intervals. The agreement between the observers was calculated for the occurrence of the target behaviors when two observers observed and recorded the incidence of the target behaviors during specified intervals. Non-occurrence was also checked for reliability using the same procedure. The overall agreement was 93%. The formula used for computing reliability was the number of agreements per interval divided by the number of agreements plus disagreements per interval multiplied by 100.

Procedures

Independent Variable

The independent variable in this study was correspondence training (say and do) using statements such as, "I will be nice to other children," or "I will play cooperatively with my friends." These statements by the subjects were prompted and encouraged at the beginning of each session during the intervention phase of the study. These statements aimed to increase the friendly and cooperative behavior toward peers and to decrease the target behavior (aggression) among subjects.
Baseline

Children were observed in every session during free play activity and supervised activities. The observers recorded the occurrence and nonoccurrence of the target behaviors as defined in the Observations and Recording section above. The teachers and observers response to the occurrence of any of the target behaviors was the same during each occurrence. They attempted to solve the problem in a friendly manner and informed the child's parents (see Appendix C, The Discipline Policy).

Baseline data were taken for 2 weeks (three sessions with the fourth one having no observations) to identify the level and stability of the aggressive behaviors. During this phase no intervention procedure was applied and no changes were made except the approval for participating in the study by both the parents and the children signing the informed consent form (see Appendices D and E).

Even though the subjects signed the informed consent form, they did not know exactly when the study began and they were not aware that specific observations of behavior were occurring.

Treatment Phase

At the beginning of the treatment phase, the intervention was implemented in which the experimenter
approached the child and spoke to him or her about the advantages of playing cooperatively with other children. The prompting was continued at the beginning of the session until the child said that she/he would play and behave in a friendly manner with other children. At that point, the experimenter spoke to the child immediately, "You said that you will play and behave in a friendly manner with the other children. That's great! I like that!"

In the subsequent sessions of the treatment phase, the experimenter asked each subject about the best way to play with other children. If the child responded correctly, the experimenter praised the child's verbalization immediately. If the child did not respond correctly, the experimenter prompted the child until the correct statement was made and then the experimenter praised the verbalization immediately.

At the end of each session of the treatment phase, the experimenter praised the subject if his/her level of aggressive behavior was less than their average level in the baseline phase. The praise was directed to the "say/do" correspondence. For example, "You played cooperatively and were friendly with the other children as you said you would. That's great! I like it that you did as you said." If the level of aggressive behavior
was equal to or greater than the average level in the baseline, the experimenter said nothing to the child.

Aggressive behavior during the treatment phase was handled according to the normal procedure (see Appendix C). Thus, there were no changes in responding to the children's aggression during the baseline, intervention, and follow-up phases.

Follow-Up

Following the intervention phase, observers continued to record the target behaviors for two more sessions to observe their level of occurrence after the intervention was withdrawn. The Kids Club closed for the semester which did not allow for further observation and follow-up of the target behaviors.

Results

The total number of intervals in which aggressive acts were recorded across all experimental conditions is shown in Figure 1. Each data point represents the total number of intervals for all subjects in which aggressiveness was recorded during the experimental session. Each session consisted of five, 10 minute intervals. Each 10 minute interval consisted of ten, one minute units. Each unit was observed and the occurrence of the target behavior recorded, during each minute. Thus, the maximum
number of intervals in which behavior could be recorded for all subjects was 200.

![Graph showing total target behaviors exhibited by all subjects during different phases.](image)

Figure 1. Total Target Behaviors Exhibited by All Subjects During Different Phases

These data show that under normal or baseline conditions, subjects exhibited high levels of aggressive behavior. This level dropped dramatically to less than half the number recorded in baseline when correspondence training was implemented. The total number of intervals in which aggressive behavior was measured increased during the follow-up phase when the intervention was withdrawn.
Table 1 shows the mean number of intervals in which aggressive behavior was recorded for each subject during the three experimental phases. Under baseline conditions, the mean number of intervals during which aggressive behavior was observed for Subject #1 was 5.33 and then dropped to 2.5 during the correspondence training. The number of intervals during which aggressive behavior was exhibited by this subject increased again during the two follow-up sessions to a mean of three intervals per session.

Table 1
The Mean Number of Intervals in Which Aggressive Behavior Recorded for Subjects During Each Experimental Phase

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Experimental Phase</th>
<th>Baseline</th>
<th>Intervention</th>
<th>Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>5.33</td>
<td>2.50</td>
<td>3.00</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>7.00</td>
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<td>4.00</td>
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<tr>
<td>3</td>
<td></td>
<td>1.33</td>
<td>1.00</td>
<td>3.00</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>5.30</td>
<td>.75</td>
<td>2.50</td>
</tr>
</tbody>
</table>

Subject 2 showed the greatest number of intervals in which aggressive behavior occurred; it was 7 intervals per session during the baseline phase (see Table 1). This level dropped from 7 to 4.25 intervals per session when the correspondence training was implemented. During
the follow-up phase, the mean number of intervals per session was 4 in which his aggressive acts were counted.

The target behavior for Subject 3 was recorded in 1.33 intervals per session in the baseline phase, 1 interval per session in the treatment phase, and in 3 intervals per session in the follow-up phase.

The target behavior for Subject 4 was recorded in 5.3 intervals during the baseline phase per session, .75 interval per session during intervention phase, and in 2.5 interval per session in the follow-up phase.

Discussion

This study investigated the efficacy of correspondence training in controlling aggressive behavior among children in play settings. A reversal analysis of say/do correspondence training suggests that the decrease in the level of aggression was a function of correspondence training.

The results showed that prompting and reinforcing the verbalization at the beginning of each intervention session and then praising that correspondence at the end of each session resulted in increased positive correspondence for three of the subjects. The level of aggressive behavior exhibited during the baseline phase by those subjects decreased during the intervention phase. Only Subject 3, displayed a low level of
aggressive behavior in baseline compared with the other subjects. For this subject the results suggest that part of the intervention was absent, since that target behavior was not affected by the intervention. The changes in level of the target behavior showed variability between subjects and between sessions for each subject, but the mean number of intervals with incidents of the target behavior for all subjects decreased from 19 per session during the baseline phase to 8.5 per session during the intervention phase. Then the mean number increased to 12.5 during the follow-up phase.

Although the literature showed no application of correspondence training for controlling aggression, the results of the current investigation were consistent with prior correspondence training research (Guevremont et al., 1986a; Israel & Brown, 1977) which successfully applied correspondence training to teach children to engage in specific kinds of play activity.

The first experiment assessed the effectiveness of say/do correspondence training in controlling aggressive behavior between children without a comparison with another intervention, such as organized and structured activity in the play setting. The latter two procedures are effective in controlling aggressive behavior among children (Depietro, 1981; Murphy et al., 1983). Such a
comparison may give clear ideas about the efficacy of correspondence training in controlling aggressive behavior between children.

In summary, the effects of say/do correspondence training on aggressive behavior between children in play settings was found to be successful in decreasing aggressive behavior between subjects. It is important to control aggressive behavior between children for their safety and to achieve better academic and social development. Correspondence training may be important in controlling aggressive behavior because it is a simple and unobtrusive technique which readily available and easy to administer.
EXPERIMENT #2

Experiment #1 examined the effectiveness of correspondence training (say/do) in controlling aggressive behavior between children. The results showed a decrease in the target behavior as a result of the intervention. Because the target behavior is a low rate behavior, a comparison between correspondence training and another intervention may help in making judgments about the effectiveness of this procedure.

Experiment #2 replicated Experiment #1 and applied the correspondence training to other subjects at different ages. At the same time this experiment compared the effectiveness of correspondence training with organized activity procedure for controlling aggressive behavior between children in play settings.

Methods

Subjects

Two boys aged 4 and 5 years and two girls at 4 years of age, served as subjects in this study. They were selected from 12 children in the yellow room from the Child Development Center which is used for recreational and educational activities.

One teacher and two female students from the Psychology Department at Western Michigan University
completing a practicum experience, supervised a variety of recreational, educational and play activities.

Subjects were selected after a two pilot observations and they were chosen because of exhibiting more target behavior than the other children in the room.

Settings

The experiment was conducted in the yellow room in the Child Development Center. Activities include organized play, painting, games with the teacher or student teacher, or free play where the children play with the toys and do activities they like with no interaction with the teacher.

The organized activities sessions were started in the first 45 minutes, then free play sessions for another 45 minutes. These activities took place indoors and outdoors on the play ground, depending on the weather and the type of activity.

Dependent Variables

The dependent variable in this study was the aggressive behavior by children toward peers; hitting, kicking, pushing, dirt throwing and other behaviors causing pain, physical harm, or destruction of toys, materials, or clothes. The definition also included behaviors that resulted in freedom constraints, and verbal aggression such as teasing or name-calling.
Observation and Recording

The observation period was conducted while the children were engaging in their usual activities. The 45 minute period of organized activities was divided into four, 10 minute blocks, after excluding the first 5 minutes. From each 10 minute block, the first 5 minute unit was selected for the observation. This 5 minute unit was divided into five intervals of 1 minute. The occurrence or non-occurrence of aggressive behavior during each interval was recorded on a special form prepared for this study (Appendix B). The occurrence of aggressive behavior during the 1 minute interval recorded as "+" and the non-occurrence as "0" for each interval and subject.

Observers Selection and Training

Observations were made by a team of two female students from Western Michigan University, for 74% of the observation sessions. The other 26% of the observation sessions were conducted by a team of one of the female students and the researcher. The observers were trained by the researcher and provided with a hand-out that explained the observation procedure and the operational definitions of the target behavior.

Observation reliability was obtained by calculating the agreements between the observers by dividing the
agreement by agreements plus non-agreements multiplied by 100. The observers were trained until an 87% inter observers agreement level was reached prior to starting observation in the experimental sessions.

Procedure

Children were observed in every session during free play and supervised activities. During the baseline phase observers recorded each instance of target behavior as defined in this study. The teachers and the observers response to the target behavior was according to their usual procedure, attempting to solve the problem in a friendly way. The baseline phase lasted 2 weeks to identify the level and stability of the aggressive behavior.

Before implementation of the treatment, the teacher instructed the children about the meaning of the statements they were expected to verbalize during the intervention phase. She asked them questions about examples and non-examples of the playing friendly, sharing and being nice with their peers until the children answered all the questions correctly several times.

At the beginning of the treatment phase, in the free play sessions, the experimenter asked each child to recite the advantages of playing cooperatively with other children. This was continued until the child agreed to play and behave in a friendly manner with other children.
The intervention was started when the experimenter asked the child "How will you play during the free play today?" If the child answered; "I will play friendly or nicely," then the teacher rewarded the child at once by praising him/her. If the child hesitated or gave another answer, the teacher said "to the child that the best way is to play in a friendly manner and nicely with the others." Then the teacher repeated the question until the child said that he/she would play in a friendly manner with the other children. At that point the experimenter spoke to the child directly, saying the following: "You said that you will play and behave in a friendly manner with the other children. That's great! I like that."

In the following sessions of the treatment phase the experimenter asked each of the subjects about the best way to play with other children. When the child responded correctly, the experimenter immediately praised the child's verbalization. If the child did not respond correctly, the experimenter prompted him/her to make the correct statement. The experimenter praised the correct verbalization immediately.

At the end of each session of the treatment phase the experimenter praised subjects who behaved in accordance with the correct verbalizations. The child was considered showing correspondence when the incidence
of the target behavior in the manipulation phase was less than the average incidents per session of the behavior during the baseline. The praise was directed to the correspondence of "say/do." For example, "You played cooperatively and were friendly with the other children as you said you would. That's great! I like that you did as you said." If the child did not show correspondence between say/do, the experimenter made no comment.

The normal treatment of aggressive behavior at the Child Development Center was to write a report to the parent (see Appendix C). These conditions persisted throughout the experiment.

For the organized activities there were no changes from normal settings and the observers recorded the instances of the target behavior during the implementation of the correspondence training for the free play sessions.

Experimental Design

An ABA reversal design was used as a comparative measure for the introduction and maintenance of the interventions. In the baseline phase, the subjects were observed and the target behavior recorded without any treatment implementation for 2 weeks. In the treatment phase the correspondence training was then implemented for 2 weeks. The follow-up phase was started after the
treatment phase and continued for a 7 day period. In this last phase, target behavior was recorded as in the baseline phase to measure stability and maintenance of the target behavior.

Results

Reliability was calculated for inter-observer agreement of one third of the observations for the occurrence and nonoccurrence of the target behavior. Agreement between observers was 94% for the occurrence and 97% for nonoccurrence of the target behavior.

Figure 2 shows the intervals in which aggressive behavior was recorded at different phases in the experiment. Each data point represents the total number of intervals for all subjects in which aggressive behavior was observed during that experimental session. Each session consisted of four, 5 minute blocks, each 5 minute block consisted of five 1 minute intervals, and thus there were 20 intervals in which behavior could be recorded. Each interval was observed and the occurrence of the target behavior recorded.
During the baseline condition, aggressive behavior was recorded in 75% of the intervals. This level dropped dramatically to 36.5% of the intervals when correspondence training was implemented during free play. In the follow-up phase, again without the correspondence training, aggressive behavior was recorded in 55% of the intervals.
Table 2 shows the mean number of intervals per session in which at least one incidence of aggressive behavior was recorded for each subject during the three experimental phases.

Table 2
The Mean Incidents of Aggressive Behavior Exhibited by Subjects During Different Experimental Phases

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Baseline</th>
<th>Intervention</th>
<th>Follow-Up</th>
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<tbody>
<tr>
<td>1</td>
<td>4.50</td>
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Under baseline conditions, Subject 1 exhibited high levels of aggressive behavior but this level dropped from 4.5 to 3.1. intervals per session when the correspondence training was implemented. This level increased to 4.14 intervals per session following treatment withdrawal during the follow-up phase.

Subject 1 received a prompt to verbalize the correct say/do two times in session 1, 2 and 4 and one time in the other sessions during intervention phase of free playing.
Aggressive behavior exhibited by Subject 2 in the baseline phase was recorded in a mean of 3.4 intervals per session. This level dropped when correspondence training was implemented to 1.4 intervals per session then it increased to 2.43 intervals per session in the follow-up phase when the intervention was withdrawn. Subject 2 was prompted one time each session during intervention phase of free playing.

For Subject 3 the mean number of incidents of target behavior was recorded in 2.9 intervals for session in the baseline phase this level was decreased to .8 interval for session in the intervention phase. Then it increased to 1.14 interval during the follow-up phase. Subject 3 was prompted once each session during intervention phase of free playing. The aggressive behavior exhibited by Subject 4 during the experimental phase was recorded for 4.3 interval per session during baseline phase, this level decreased to 2 intervals per session when correspondence training was implemented, then it increased to 4.3 interval per session during follow-up phase when the intervention was withdrawn. Subject 4 had to be prompted two times in the first session and one time each session in the intervention phase of free playing.

During organized activity the aggressive behavior recorded for Subject 1 and Subject 2 averaged .4 intervals per session. The mean incidents of aggressive
behavior emitted by Subject 3 was .3 intervals per session and .2 intervals per session for Subject 4. These data are presented in the middle panel of Figure 2, and show a level of aggression which is far less than that obtained under the correspondence procedure.

Discussion

Experiment #2 replicated Experiment #1 and applied the same procedure say/do correspondence training for controlling aggressive behavior during free play with different subjects. Subjects in Experiment #1 were 8 and 9-year-olds, while subjects in this experiment were 4 and 5-year-olds.

The results of experiment #2 showed changes in the level of aggressive behavior between subjects, but the level recorded in the baseline phase decreased for all subjects when they were exposed to correspondence training during the intervention phase. The level then increased in the follow-up phase when the treatment was withdrawn, but it did not reach the baseline level.

Experiment #2 also measured aggressive behavior between subjects under organized playing activities and again the results showed that subjects varied in their level of aggression. At the same time, this level was far less than that obtained during free play sessions when correspondence training was implemented. The
results showed that organized activities were more effective in controlling aggressive behavior between children than say/do correspondence training in play settings.
GENERAL DISCUSSION

The present study investigated the effectiveness of say/do correspondence training in controlling aggressive behavior between children in play settings. A reversal analysis of say/do correspondence indicates that changes in the level of aggressive behavior were a function of correspondence training in both experiments.

In Experiment #1, the level of aggressive behavior exhibited by subjects during the baseline phase decreased during the intervention phase and increased when treatment was withdrawn during the follow-up phase.

Experiment #2 replicated Experiment #1 and compared the efficacy of correspondence training in controlling aggressive behavior with organized activities. The results show that the dependent variable changed as a result of exposing to and withdrawing of correspondence training. The level of aggressive behavior in the intervention phase dropped to less than half of the baseline level. The results also show that organized activity was more effective in controlling aggressive behavior between children than correspondence training.

The results of this study were found to be similar to Guevremont et al. (1986) where correspondence training applied for teaching withdrawn children to talk
and interact with other children and to share in the classroom activities. They are consistent also with the work of Roger-Warren and Baer (1976) for teaching children sharing and praising behaviors. The results of this study are also similar to Acker, Acker, and Peerson (1973) and Pirot and Acker (1978) where training was concentrated on incompatible behavior to control aggression between children. They are also consistent with the study of Slaby (1974) in which children were taught to select and speak friendly and helpful words which led to a decrease in their aggressive behaviors.

This study applied correspondence training, a say/do procedure without a content phase. In the content phase the reinforcement followed the verbalization with no relation to doing. Israel and Brown (1977), Lovaas (1961), McManus (1984), Risley and Hart (1968), and Sherman (1964) suggested that a content phase leads to increases in verbalization but not correspondence. In spite of that, a content phase is supposed to be important for correspondence training, which may be considered as a limitation in this study. In comparing say/do and do/say procedures, different studies (Israel & Brown, 1977; Israel & O'Leary, 1973; Karoly & Dirk, 1977; McManus, 1984) found the say/do procedure to be more effective in producing changes in the target behaviors. For this reason it may be useful to recommend
investigation of the effects of the do/say procedure and the content phase with both do/say and say/do for future research investigating aggressive behavior between children.

This study assessed the effects of correspondence training on children's aggressive behavior in play settings in general but not for controlling specific kinds of aggressive behavior. Therefore, it may be beneficial to evaluate the effects of correspondence training in controlling specific kinds of aggressive behavior between children since the efficacy of correspondence training may vary with various kinds of aggression. The results of this study also suggest that for future research correspondence training can be applied to control aggressive behavior between children in different settings, such as classrooms or other school settings.

Although correspondence training procedure has been used to produce maintenance and generalization, the present study did not aim to achieve these purposes. It is recommended that this procedure be applied to teach generalization and to produce maintenance when applying correspondence training to control aggressive behavior, as has been demonstrated with other kinds of behavior (Baer et al., 1985; Guévremont et al., 1986a; Stokes & Baer, 1977).
Finally, the results of this study show that organized activity is more effective than correspondence training in controlling aggressive behavior between children. These results, however, do not make correspondence training less important, since correspondence is a valuable procedure to control aggressive behavior between children by intrinsic and unobtrusive methods. The correspondence training methods may also increase self control between children, and may lead to control of aggressive behavior under different settings by stimulus generalization. The say/do procedure also may maintain control of aggression over a longer period than other behavioral procedures.

In summary, the effects of say/do correspondence training on aggressive behavior between children in play settings was found to be successful in decreasing aggressive behavior between subjects. It is important to control aggressive behavior between children for their safety and to achieve better academic and social development. The say/do procedure may be important in controlling aggressive behavior between children because it uses a simple and unobtrusive technique. This technique is humanistic and does not cause a distraction in the environment and is effective in controlling aggressive behavior while, at the same time, it is readily available and easy to administer.
Appendix A

Instructions to Observers
INSTRUCTIONS TO OBSERVERS

Thank you for participating in this study. The results will tell us if the use of a very simple procedure will help children play harmoniously with each other.

Your task is to observe the children at play as you usually do and simply record any instances of behaviors that match those listed below.

It is important that you keep a record of the target behaviors on the RECORD SHEET provided and follow the procedure indicated.

Observations will be conducted while the children are engaged in their normal activities.

You will be instructed in the observation and recording process and be given opportunities to practice and ask questions prior to use.

Observations will start at the beginning of each one-minute interval and your record of behaviors made at the end of each interval.

Observation will be conducted while the children are engaging in their usual activities. The 45 minutes of organized activities will be divided into four, ten minute blocks, after excluding the first five minutes. From each ten minute block, the first five minute unit will be selected. This five minute unit will then be divided into five intervals of one minute. The occurrence or non-occurrence of aggressive behavior during each interval will be recorded on a special form prepared for this study.

A wrist timer (watch) will be set to signal the end and beginning of each minute with a quiet series of beeps.

You are to record the occurrence of ANY target behaviors for each subject at the end of the one-minute interval by placing an "X" in the appropriate box under each subject's number. This should be done at the onset of the beeper.

The non-occurrence of target of target behaviors should be indicated with a "O" in the appropriate box using the same procedure.

Once the recording is complete, you are to begin your observations for the next interval at the OFFSET or end of the beeper series.

Repeat the above steps for the 5 intervals for each ten-minute block: Beeper on = record. Beeper off = observe.
TARGET BEHAVIORS

The behaviors of interest are typically viewed as undesirable in usual social interactions and are referred to as "aggressive" in a wide variety of settings. Specific behaviors may vary across settings but have many characteristics in common. For purposes of this study, the following behaviors are identified as "target" or "aggressive behaviors:

Category: Physical Behaviors
1. Hitting
2. Kicking
3. Pushing
4. Pulling hair
5. Forceful pulling
6. Throwing objects causing harm to others.

For purposes of definition, it does not matter if the child uses an object or his/her own body to behave aggressively.

Category: Behavior related to property
1. Deliberate destruction of property.
2. Deliberate damage of property.
3. Forceful taking of property from another without permission.
4. Withholding the property of others - teasing.
5. Stealing.

Category: Vocal Behavior
1. Screaming or shouting to tease another.
2. Swearing at another.
3. Teasing.
Appendix B
Record Sheet
RECORD SHEET

Note any instance of target behavior by checking appropriate box

SUBJECTS

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Appendix C

Policies for Discipline
**Policies for Discipline — Kid's Club**

The policies for discipline that will be utilized in the program are identical to those used in the After School Program at the University of Michigan. All staff will be trained to use these guidelines.

1. Form a positive relationship with the children as quickly as possible.

2. Avoid being too authoritarian. Try to explain why you are asking a child to do something, each time you ask something.

3. If a child is constantly (3-4 times) disrupting the group, send him/her to talk to the Program Director. This should not be a form of punishment, just a "time-out" for the child — a chance to compose him/herself and to talk about the problem. An example of this would be a child who had a problem with swearing. The first time would be a verbal warning. Let the child know how you feel about him/her swearing. The second time would be a time-out and also a discussion with the Director. Through this we would work out the problem, and if possible, solve it. If the problem is not being solved, after repeated attempts, we would then bring the parents into the situation and ask for their assistance. If a child's continued misbehavior seriously disrupts the group, and all attempts at a solution fail, we would consider asking the parents to withdraw their child from the program. **Please also note that a more severe problem, such as hitting other children, would result in "time-outs" each time the problem occurred, and would be brought to the parents attention at an earlier point.

4. Give clear and simple directions, stated in a positive, rather than a negative, way.

5. Make sure the children understand the rules, and the reasons behind them...safety and welfare, protection of the rights of others, and the position of others.

6. Give children a time guideline — they cannot move as fast as adults do. Therefore, you must give them ample time to clean up, before moving on to the next activity.

7. Make sure that all staff understand the rules and consistently maintain them. Do not give the child the opportunity to go to a less "strict" staff member and get the answer they want.

8. Consequences of a child's misbehavior should be immediate, of short duration, without humiliation, and consistently applied.

9. Do not hold grudges against children. Make sure the child knows that it is the action and not the child that you disapprove of.
10. Do not leave the children unsupervised, even for a minute. This can prevent many discipline problems in addition to maintaining safety requirements.

11. Divert trouble by being creative, separating two fighting children, and playing a game, etc.

12. Make sure that you are giving enough positive attention and praise. Some children only want your attention.

The guidelines will be discussed between the Program Director and staff during orientation to the program.

In addition to the above discipline guidelines, the following "House Rules" were established for the children.

*House Rules*

1. Use tender voices
2. Clean up after yourself
3. Always share and cooperate
4. Ask permission to:
   A. Get equipment out
   B. use the bathroom
5. No arguing or fighting
6. No bad language
EXPERIMENT #2

CDC DISCIPLINE POLICIES

Staff members use positive methods of discipline which encourage self-control, self-direction, self-esteem, and cooperation. Staff members discuss the problem with the child and discuss ways that the child can control and direct his or her own behavior.

At no time do staff members hit, shake, punch, etc. children attending our center. Children are not deprived of meals, snacks, rest, or necessary toilet use. Staff members do not inflict emotional punishment such as humiliating or threatening a child. Restraint is only used to prevent a child from harming him/herself or others.
Title: Responding to potentially Dangerous Situations

Definition: Responding to potentially dangerous situations is defined as the staff member recognizing, intervening in, and/or preventing potentially dangerous situations.

Definition of terms: Potentially dangerous situations are defined as instances in of which materials or children are positioned in such a way that children or others may receive physical harm.

Recognizing potentially dangerous situations is defined as a 4 point checklist when entering a room or situation, the staff member should always check 1) where are the adults, 2) where are children, 3) what is everyone doing, and 4) what accidents might happen in this situation.

Intervening in a potentially dangerous situation is defined as acting to prevent an accident from occurring while at the same time not reinforcing any behavior that may have led to the potential danger.

Preventing potentially dangerous situations is defined as rearranging materials and/or children in such a way that the potential danger is minimized. This rearrangement must occur within 5 seconds of recognition of the situation by the staff member.

Title: How to Approach and Interact With Children

Definition: Approaching and interacting with children is defined as the staff member engaging in the activities of the day with the children in a positive manner.

Definition of terms: Approaching the child is defined as the staff member introducing themselves to the child if necessary, and 1) asking the child about the activity the child is presently engaged in, or 2) incorporating the child into an ongoing activity.

Interacting with the children is defined as the staff member participating with guiding, and consequating the behavior of the children in the activities of the day in a positive manner.

Positive manner is defined as the staff member concentrating on the appropriate behavior of the children rather than their inappropriate behavior. This means that the staff member must be on the lookout for what the children are doing right, and only in certain few circumstances what they are doing wrong, in other words, "catch 'em being good".

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Appendix D

Informed Consent Form
Informed Consent for Participation in an Investigation

Your child ____________________________ is invited to participate in a research study. We are investigating the effects of a simple process for reducing aggressive play behavior among children. The participant will be observed during play settings with other children and asked to make a statement such as "I will play friendly with other children," or "I will be nice with my friends." The experimenter will then praise the child's statement and check correspondence between what the child said and did. This research involves no risk to your child since it will be done in the normal play setting during the children's activities. Any information obtained in this study will be confidential to the experimenters only. If you sign the release of information form, you give permission for the data to be used in scientific presentations and publications. All identifying information will be removed.

Participation is voluntary. Your decision will not in any way bring any harmful consequences to you or your child.
Questions or complaints regarding this research or your rights may be directed to naiel albkower at 342 1961. If you wish further information, you may contact Dr. Ellen page Hobn, chair, Human subjects institutional Review Board, at 3836 1657.

Your signature below indicates that you understand the above information and have decided to participate. You will be given a copy of this form to keep.

___________________________ ______________________
Signature Date/Time

___________________________ ______________________
Signature of investigator Signature of witness
Appendix E

Children's Informed Consent Form for Participation in an Investigation (for 8 or more years of age)
We would like to see if you can do what you say in playing with others. We will ask you to say that you will be friendly in playing with others each day before we play and see if you do.

Would you like to do this?

If it is okay, put your name here. ___________________________
BIBLIOGRAPHY


Osnes, P. G., Guevremont, D. C., & Stokes, T. F. (1986). If I say I'll talk more then I will: Correspondence training to increase peer-directed talk by socially withdrawn children. *Behavior Modification, 10*(3), 287-299.


