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Generalization of Sharing in Behaviorally Handicapped Preschool Children

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GENERALIZATION OF SHARING IN BEHAVIORALLY HANDICAPPED PRESCHOOL CHILDREN

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THESIS ACCEPTANCE

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Abstract

This study investigated the effects of a training package for increasing the sharing behavior of seven behaviorally handicapped preschool children in a freeplay setting and evaluated the generalization of training effects to a recess period. The 12-day training program in freeplay consisted of instructions, modeling, behavioral rehearsal, and in-session teacher prompts and praise regarding sharing skills. Training was supplemented by an ongoing self-monitoring and reinforcement procedure implemented daily immediately following the freeplay period. Training was introduced sequentially in a multiple baseline design across two pairs and one triad of children. Behavioral observations showed increased rates of sharing for all seven subjects in the freeplay setting, with slight unprogrammed generalization to recess. Sharing in recess was enhanced by implementing a minimal adaptation of the training package directly in recess. The self-monitoring and reinforcement procedure successfully replaced direct teacher attention for sharing during freeplay as a means of maintaining the sharing training effects. Analysis of individual components of sharing showed that all children substantially increased their levels of offers, requests, and acceptances of others' offers and requests following training. Substantial increases occurred in proportions of sharing initiatives accepted in both settings, even though the absolute frequency of both acceptances and refusals increased for the majority of the children. Training also resulted in desired supplemental changes in the children's social behavior, including decreased rates of negative interactions, increased cooperative play, and increased sharing-initiated cooperative play.

Generalization of Sharing in Behaviorally Handicapped Preschool Children

Introduction

Handicapping conditions frequently are marked by maladaptive social behaviors and deficits in positive interpersonal skills (Kneedler, 1980). For children with behavioral handicaps, such social problems are a prime identifying feature. For example, in the State of Nebraska, behaviorally impaired children are defined as those children who are unable to build or maintain satisfactory interpersonal relations with peers. The problems of behaviorally handicapped children can be approached by consequating maladaptive social behaviors or by teaching positive social skills that help children develop and maintain more functional interpersonal relations with peers. The purpose of the present study was to facilitate a positive social skill, sharing, in behaviorally handicapped preschool children.

Sharing is a complex social behavior that includes verbally and physically offering or requesting toys, materials, or access to activities; accepting peers' offers and requests; and simultaneously using toys and materials (Barton & Ascione, 1979; Rogers-Warren & Baer, 1976; Bryant & Budd, Note 1). Sharing is present in children as young as two years (Rheingold, Hay, & West, 1976). As age increases, children display increased sharing with each other (Handlon & Gross, 1959). Positive social behaviors such as sharing create a predictable social environment and set the occasion for reciprocal, positive responses from peers (Charlesworth & Hartup, 1967; Kohn, 1966; Strain, 1977; Strain, Shores, & Timm, 1977). Failing to share often is disruptive in the preschool classroom and can result in aggression against the nonsharer (Barton & Osborne, 1978). The long-term consequences of not

participating fully in social interaction have been correlated with school dropout (Ullman, 1957), juvenile delinquency (Roff, Sells, & Golden, 1972), and adult mental health problems (Cowen, Pederson, Babijian, Izzo, & Trost, 1975).

Given the importance of developing good peer relationships, teaching specific social skills has become an accepted curricular goal for preschool-age children (Tremblay, Strain, Hendrickson, & Shores, 1981). Of twelve social behaviors observed in normal preschool interactions, Tremblay et al. identified sharing as having the second highest probability of resulting in a positive peer response. Their study of interaction patterns of 60 preschool children during freeplay periods showed that sharing occurred approximately once per 6-minute session and received a positive peer response 79% of the time. The fact that sharing is a relatively frequent behavior in normal preschool children and that it typically results in positive peer interactions makes it a useful target behavior to teach behaviorally handicapped preschool children. Teaching sharing to behaviorally handicapped children provides them with a positive social skill for interacting with other children that is incompatible with negative behavior, and increases the possibility of developing friendships.

Children's sharing was studied as early as 1934 by Currier, who investigated the effects of environment on preschool sharing behavior. Later investigations have examined sharing in laboratory settings to discover developmental trends and situational variables affecting it (Bar-Tal, Raviv, & Leiser, 1980; Elliot & Vasta, 1970; Gelfand, Hartman, Cromer, & Page, 1975; Krebs, 1979; Rheingold, Hay, & West, 1976). While these studies were designed primarily as descriptive analyses of the characteristics of sharing in normal children, another type of recent research has focused on experimental attempts

to teach sharing to children who lack acceptable social skills. These studies often employ behavior modification techniques to increase sharing responses.

Behavioral procedures for teaching sharing have included positive practice (Barton & Osborne, 1978), developing correspondence between reports of sharing and the children's actual practice of the behavior (Rogers-Warren & Baer, 1976), and treatment packages using combinations of techniques such as modeling, instructions, behavioral rehearsal, prompts, and praise (Barton, 1981; Barton & Ascione, 1979; Barton & Bevirt, 1981; Cooke & Apolloni, 1976; Strain, Shores & Kerr, 1976; Bryant & Budd, Note 1). These training packages have been shown effective in increasing sharing of children in normal preschools (Barton, 1981; Barton & Ascione, 1979; Barton & Bevirt, 1981 Rogers-Warren & Baer, 1976), learning disabled children (Cooke & Apolloni, 1976;), and those who are behaviorally handicapped (Strain et al., 1976; Bryant & Budd, Note 1).

Behavioral studies of sharing show a trend toward more naturalistic training procedures. These more naturalistic procedures increase the external validity of the results and provide teachers with techniques that can be applied directly in their own classrooms after being tested in similar settings. Training and collection of data in most sharing studies has moved from the experimental laboratory but still occurs in "quasi-classrooms" rather than actual classrooms and with adults other than regular classroom teachers (Barton, in press). Actual classroom settings and regular teachers have been used only by Barton and Osborne (1978), Strain, Shores, and Kerr (1976), and Bryant and Budd (Note 1).

A key measure of the success of any intervention procedure is the extent to which the effects generalize to settings, responses, and people outside the treatment environment. In a comprehensive review of research on classroom

sharing, Barton (in press) noted that investigations of sharing have measured and found evidence of generalization more often than has been true in several other research areas. Still, as pointed out by Stokes and Baer (1977), generalization cannot be expected to occur naturally but is rather the result of formal, informal, or inadvertent programming. Generalization is encouraged by programming common stimuli between the training and generalization settings, such as providing similar settings, materials, structure, subject populations, and adult supervision. Generalization of sharing across subjects and settings has been enhanced by integrating trained with untrained children (Barton & Bevirt, 1981; Cooke & Apolloni, 1976; Strain, Shores, & Kerr, 1976). Other techniques found useful in facilitating generalization are reinforcement of children's true reports of sharing (Rogers-Warren & Baer, 1976), adult presence in the generalization setting (Barton, Olszewski, & Madsen, 1979), and delay of reinforcement (Fowler & Baer, 1981).

One variable that has received little attention as a technique for training and generalization of sharing is a self-control procedure labeled correspondence training. Correspondence training entails having a child specify his/her intentions regarding a specific action in detail and then receiving explicit feedback on whether he/she complied with the intentional statement (Meichenbaum, 1979). Meichenbaum recommends a "say" then "do" sequence to achieve the highest level of correspondence and then contingently reinforcing the intention-execution sequence for the greatest gains in self-control. These procedures were successfully employed by Rogers-Warren and Baer (1976) to teach sharing and praising to normal preschool children and resulted in some generalization to a second setting. However, it is

unclear whether this same approach could be used successfully with children who are behaviorally handicapped or display other developmental delays.

A second self-control technique that could potentially be effective in increasing sharing is self-observation or self-monitoring. Kurtz and Neisworth (1976) recommend that self-control procedures such as self-monitoring be used with handicapped children to provide an opportunity for the children to govern their own behavior, for the potential generalization and maintenance benefits, and to teach the children a strategy that can be applied to future problems. Self-control procedures also reduce teacher involvement in treatment once initial training has been completed. Holman and Baer (1979) found that teaching children to self-monitor their academic task completion facilitated on-task responding and decreased off-task and disruptive behavior for six normal and six deviant preschool children, with the effects maintaining in two of the three children monitored ten months later. Self-monitoring also has effectively increased on-task behavior in eight normal second-grade children (Glynn, Thomas & Shee, 1973) and reduced levels of disruptive behavior in eight third-grade boys (Drabman, Spitalnik & O'Leary, 1973). To date, self-monitoring has not been examined as a procedure to increase sharing.

In addition to self-control procedures, the use of peers as treatment agents has been suggested as a viable method of training children in social skills. In an overview of the peer literature, Raglund, Kerr, and Strain (1981) discussed commonly-used peer strategies of providing group consequences, teaching peers to prompt and praise, and teaching peers to initiate specific social overtures to withdrawn classmates. They concluded that peers were very consistent in carrying out even complex procedures, that treatment generalization across time and settings may sometimes be expected,

and that the peer behavior managers have demonstrated only positive behavior changes due to their participation. Stokes and Baer (1977) also recommended involving peers as a practical and natural technique for providing generalization across settings through their common stimulus properties with the original training environment. They recommend that peers be involved in the training setting to acquire sufficient discriminative function to control generalized responding in another setting.

Studies in areas other than sharing have used peers as intervention agents to increase levels of social interaction in socially isolated children (Strain, 1977; Strain, Shores, & Timm, 1977), to increase positive social interaction of withdrawn boys (Raglund, Kerr, & Strain, 1981), to increase cooperative play and decrease aggression (Grieger, Kaufman, & Gieger, 1976), and to teach word-recognition skills (Stokes & Baer, 1976). However, to date, peer intervention has not been studied with respect to increasing children's sharing. A peer approach would seem to have merit in decreasing the teacher time needed to implement treatment and providing a consistent reminder to both target children and peers of desired social behaviors. However, considering that sharing is a complex behavior, it may be difficult to use peers as treatment agents, especially with young, behaviorally handicapped children.

Based on the success of previous studies and the trend toward more naturalistic, less teacher-controlled approaches, it appears that a technology of training sharing is being developed. However, to date, the literature contains very limited examples of training sharing to behaviorally handicapped children. It also provides few instances of training or maintenance procedures that do not necessitate direct teacher involvement in the classroom activity. The present study was designed to replicate and extend the findings of Bryant and Budd's (Note 1) study utilizing Barton and Ascione's (1979)

training package, with adaptations to reduce teacher involvement and enhance generalization. Several recommendations from Barton's (in press) comprehensive review of the classroom sharing literature also were incorporated into the study. These recommendations were as follows: (1) using an inclusive definition encompassing both verbal and physical sharing; (2) using regular classrooms and familiar adults as treatment agents; (3) training the children with a pool of novel, high value toys with a subset of the pool used on different days; (4) training during the freeplay period with limited teacher structure; (5) monitoring teacher behavior; (6) measuring collateral behaviors; (7) collecting a minimum of 1,000 minutes of observation; (8) and displaying individualized results. The specific purposes of the study are described below.

One purpose was to examine whether or not sharing could be facilitated in behaviorally handicapped preschool children by a treatment package of teacher instructions, modeling, behavioral rehearsal, and short-term in-session prompts and praise, paired with ongoing self-monitoring, feedback, and social reinforcement immediately following the classroom activity. The classroom teacher provided the same brief training procedure of instructions, modeling, and behavioral rehearsal with feedback used by Bryant and Budd (Note 1) to teach sharing behaviors. Self-monitoring, feedback, and social reinforcement after the freeplay session replaced the provision of teacher prompts to share and praise for sharing during the classroom freeplay session. With the children monitoring their own behavior during the freeplay session, teachers and aides were not actively involved with the children during this time.

A second purpose of this study was to evaluate generalization across settings by assessing the extent to which the children's sharing behavior changed in a recess period concommitant with freeplay treatment. General-

ization might be expected since the classroom peers and teachers represent common stimuli between the training and generalization settings which might enhance the likelihood of transfer. However, the recess period, employed to evaluate generalization in this study, did vary more from the freeplay setting than the art periods commonly used to evaluate generalization in other sharing studies. Recess took place in an indoor playground that was much bigger than the classroom space allotted for freeplay, and contained large, immovable equipment that differed from the smaller, manipulative toys available in freeplay. Generalization to a second setting was assumed to be insufficient without some additional measures, so a minimal form of generalization training was planned. In defining generalization, Stokes and Baer (1977) stated that generalization may be claimed when no extra manipulations are needed for the treatment behaviors to occur under non-training conditions, or when some extra manipulations are necessary, but their cost or extent is clearly less than that of direct intervention. The generalization procedure evaluated in this study consisted of a brief training period of instructions, modeling, and behavioral rehearsal in recess, followed by an adaptation of the self-monitoring, feedback, and reinforcement procedures to a group in which all the children participated immediately following the recess period. The generalization procedure differed from the original training in being shorter in duration, involving no teacher prompts or praise directly in recess, and converting the individual self-monitoring session to a group feedback session following recess. Children were also reinforced at this time for helping other children remember to share. Thus, the generalization procedure incorporated aspects of a peer treatment approach while maintaining key features of the initial freeplay treatment.

A third purpose of this study was to evaluate the effects of the changes in sharing behavior on children's rates of a collateral behavior, cooperative play, during freeplay and recess. A 1979 study by Walker, Greenwood, Hops, and Todd demonstrated that simply reinforcing the initial approach and response components of social interaction suppressed the ongoing interactive behavior. To examine the possibility that reinforcement of sharing responses in the current study affected cooperative play, ongoing cooperative interactions were monitored throughout the study. Barton (in press) recommended the monitoring of collateral behaviors to more fully evaluate the effects of increases in sharing.

Changes in two sociometric measures also were examined. Foster and Ritchey (1979) recommend using sociometric procedures to assess the general consequences of children's social interactions on those around them and to socially validate behavior change demonstrated through direct measurement. One measure used was the Marshall and McCandless (1957) sociometric procedure of having children nominate with whom they most and least liked to play. Their nominations were then followed by having each child to rate all classmates on a three-point scale according to how much they liked to play with him/her, as recommended by Greenwood, Walker, Hops & Todd (1979). Bryant and Budd's (Note 1) interview of sharing knowledge also was employed.

This study used a similar behaviorally handicapped and cognitively delayed subject population in the same remedial classroom as Bryant and Budd (Note 1). Their detailed analysis of children's sharing responses and negative behaviors also was employed.

Method

Subjects

The subjects for this investigation were seven children aged four to six years within the PASS (an acronym for Programmed Activities for School Success) Program, an ongoing remedial classroom for behaviorally handicapped children. They attended PASS due to serious behavior problems that interfered with their performance in normal classrooms to the extent that they were referred for special treatment. The types of disruptive behavior displayed by the children include aggression, noncompliance to instructions, a defiant or negative attitude, selfishness in interactions with others, poor work habits, low rates of social interaction, and disruptive talking out. Five of the children also exhibited learning or language delays that compounded their school problems. See Table 1 for more detailed information about the individual subjects. Degree of delay levels for individual children were derived from formal test results, including the Stanford-Binet and McCarthy Scales of Children's Ability for cognitive development, the Peabody and Full-range Action-Agent Test for language development, and clinical evaluations for motor development. When not directly indicated in the test results, the degree of delay levels were derived from the available evaluations and test results in conjunction with a qualified professional in each specific field.

Insert Table 1 about here

Settings and Activities

The study took place at the Meyer Children's Rehabilitation Institute, an outpatient clinic for children at the University of Nebraska Medical Center.

The PASS remedial program was conducted in a classroom furnished with small tables, chairs, and a wide selection of educational and play materials. Class was held four mornings per week, three hours per day, across a 9-month period. The classroom program employed procedures of behavior analysis and learning theory in a structured educational setting to teach appropriate behavior. Each day the children engaged in educational and recreational activities under the direction of an experienced teacher and two aides.

This investigation entailed two classroom periods: freeplay and recess. In freeplay, a 30-minute period at the beginning of the day, three activity areas were available for the children: art, manipulative, and dramatic play or building. This investigation involved only the dramatic play/building area. Six dramatic play activities (restaurant, office, doll house, kitchen, fishing boat, and roads with trucks, planes, and dolls) and six building activities (large plastic blocks, large Tinker Toys, kindergarten blocks with zoo animals, train with track sections, cars with block roads, and unit blocks) were systematically rotated daily, with the dramatic play and building activities alternating every other day.

A 20-minute recess period, which occurred one hour after freeplay, was used to assess generalization across settings. Recess took place in an indoor playground that was divided into three areas, each with a different type of play materials. Area one contained tricycles, scooter boards, tires, a small slide, and a table and chairs. Area two contained a large sandbox with climbing apparatus in the center, rocking horses, and a barrel tunnel. Area three contained a large slide, a trampoline, an exercise mat, and basketballs. Children's access to one of the three areas was rotated daily.

Observation Procedures and Behavioral Definitions

An observer stationed directly in the classroom recorded data on child and teacher behaviors in each classroom period. The observer stood on the periphery of the activity and was equipped with a clipboard, stopwatch, data sheets, and a portable tape recorder. The observer watched one child for a 1-minute period, recorded his/her behaviors in continuous 10-second intervals, then recorded the behaviors of the next child in the same manner, and continued alternating observation across subjects in the area for the entire freeplay or recess period. The passage of 10-second time intervals was denoted by an audiotape played during the observation period.

Child behaviors recorded were offers to share, requests to share, acceptances and refusals of peers' offers and requests, positive verbal attention to peers, other verbalizations to peers, prompts to share to peers, praise for sharing to peers, and cooperative play. Negative child behaviors recorded were opposing another child's play, taking materials without asking, and physical aggression. Separate symbols were used to differentiate defined behaviors displayed by the subject and defined behaviors displayed by a peer to the subject. Recorded teacher behaviors were prompts to share, positive attention for sharing, other positive verbal attention, and other verbal attention. Each child and teacher behavior could be recorded once per 10-second interval across the observation periods. The complete definitions and recording rules are provided in Appendix A. Observers were trained to record accurately by reading and discussing the observation code, practicing scoring from videotapes of the freeplay and recess periods, and direct observation of children in the classroom during the two observation periods.

Interobserver reliability was assessed at least once per condition for each subject. Interobserver agreement was evaluated by comparing, interval by

interval, the independent records of two observers who simultaneously recorded the behaviors. To be scored an agreement, both observers had to record the same behavior in the same or adjacent 10-second interval. A percentage of occurrence agreement was calculated for each response category by computing the number of occurrence agreements over the number of occurrence agreements plus disagreements and multiplying by 100.

The sociometric nomination, interview, and peer-rating procedures (see Appendix B) were administered immediately prior to the classroom training on sharing for the first pair of children and at the end of the study. The children were asked to point out with whom in the classroom they most and least liked to play from a board containing photographs of all the children. They were interviewed to examine what they could verbalize about sharing. For the peer rating scale, they were asked to rate how much they liked, disliked, or felt neutral about playing with each of their classmates by pointing to one of three faces (happy, neutral, sad) on a card placed next to the picture of each peer. Numerical values of one to three were assigned to the peer rating scale, with one representing "don't like to play with," two, "okay to play with," and three, "like to play a lot." Scores were totaled to give each child a total rating score.

Experimental Design

A multiple baseline design across subjects was employed to evaluate the effects of the treatment procedures. In accordance with this design, training for one pair of children was completed and assessed before training began for a second and, later, a third group of children. This design controls for the effectiveness of the intervention by allowing an examination of the changes in child behavior during freeplay and recess that are correlated with the introduction of sharing training for that pair of children. While an increase

in sharing behavior might, for any one child, occur by chance at the same time training is begun, a consistent pattern of increased sharing behavior only after treatment is provided experimentally demonstrates the effectiveness of the training (Hersen & Barlow, 1976; Kratochwill, 1978).

Experimental Procedures

Baseline. Prior to sharing training in the freeplay area, teacher attention was limited to intervening only for severely disruptive behaviors that were physically harming to the children or materials, as well as prompts and praise for the correct use of the materials. The teacher and one aide were stationed in the art area, and an aide was stationed in the manipulative area.

To control group composition and number of children in the dramatic play/building area, the children were given colored badges to wear each day. For the first 12 minutes of freeplay period, children wearing a red badge were assigned to the dramatic play/building area. For the next 12 minutes, only children with yellow badges were allowed in the area. The group composition was varied systematically each day to assure that each child had the opportunity to interact with every classmate and to control the number of intervals of observation on each child. These procedures were continued throughout the study.

During recess, the children had access to all materials in the area assigned for the day. Teacher intervention was limited in the same manner as in freeplay. The teacher and two aides monitored recess from the outer boundary of the designated areas.

Treatment in Freeplay. During intervention, the children were trained in pairs or triads. The groups were selected to balance cognitive and language levels across groups. The head teacher provided sharing training following

Bryant and Budd's adaptation of the Barton and Ascione (1979) script during the first 10 minutes of the freeplay period. A copy of the training script employed in this research is provided in Appendix C. The training took place in a corner of the classroom, using the toys in the dramatic play/building area for that day. It included a discussion of sharing, modeling of sharing with the teacher and each child individually, rehearsal of sharing with the teacher and each child individually, rehearsal of sharing by the group of children with feedback from the teacher, and a review of training at the end of the session. This training continued for four days.

Each day following the basic sharing training, the children received an additional five minutes of training on how to monitor his/her own sharing behavior. These skills were taught through discussion, instruction, modeling, behavioral rehearsal, and feedback from the teacher. The teacher also observed the children during the actual freeplay period and provided prompts and praise on the sharing behaviors directly in the freeplay setting. The self-monitoring training and in-session teacher prompts and praise continued for 12 days.

At the end of freeplay, a 5-minute feedback and reinforcement session was conducted for the children in treatment. The children reported their sharing behavior by verbally describing the behavior and marking a board depicting the four components of sharing described to the children as "asking" (requesting), "giving" (offering), "keeping" (accepting a peer offer), and "letting them have it" (accepting a peer request). The teacher praised the children's true reports of sharing and provided prompts or corrections when necessary. The children were then asked to visually inspect the marked board to see if they "asked and gave a lot." The teacher judged if they met a predetermined criterion number of sharing behaviors. The children received a sticker to

wear on their badge if they offered and requested sharing a minimum of four times each during the 12-minute freeplay time they spent in the dramatic play/building area. The stickers were placed on a certificate at the end of the day. When four stickers were accumulated, the certificate was taken home. Children could also receive two stars on their certificates each day, one for keeping toys received from other children and one for letting other children have toys when they asked. Stickers and stars were chosen as reinforcers based on their observed effectiveness with other classroom training programs.

Recess conditions remained the same as baseline, with no intervention procedures employed.

Generalization Programming in Recess. Generalization of the effects of training sharing were first assessed in recess with no programming procedures. Due to inconsistent and weak findings of generalization to recess, minimal treatment procedures were implemented sequentially across children in the multiple baseline design. The generalization procedure consisted of having the teacher explain to the children how to adapt offers and requests to the play equipment available in each of the three recess areas, with two 5-minute discussions with behavioral rehearsal in each area prior to the start of recess across a 6-day period. These instructions were supplemented by providing a group reporting, feedback, and reinforcement session following recess that was modeled after the spontaneous group discussion observed to occur following freeplay. After recess, the classroom teacher and/or aides sat with the children as they reported how they had shared during recess. These reports were verified by the teacher's informal observations during recess to approximate a more natural classroom consequence requiring little teacher involvement. Children also could receive a "sharer of the day" badge for true reports of positive sharing. There were no required levels, so the

teacher used her own judgment of "good sharers" each day. Children could also receive a star each day for helping other children share. This was awarded to children who provided prompts or praise for others' sharing behavior. The emphasis of the entire procedure was to use a minimum of the freeplay procedures that could be effectively implemented by a teacher in a regular classroom.

Results

The ranges and means of reliability percentages across the study for individual behaviors and settings are presented in Table 2. Interobserver agreement levels for each experimental condition were 80% or above for all behaviors, except for general teacher attention (79%). The lower percentages of agreement displayed in the range of some behaviors were due primarily to the low rates of the behaviors on the particular day they were recorded.

Insert Table 2 about here

Because of the large number of sessions and the day-to-day variability in data for individual children, data were summarized after completion of the study into session blocks. Most session blocks are composed of data from four classroom sessions. Some blocks contain fewer sessions because a child was absent on one day or because there were an uneven number of days in the experimental condition.

Figure 1 displays the children's levels of positive sharing behavior (offers and requests to share and acceptances of peers' offers and requests) as percentages of total intervals of observation during freeplay and recess. A gradual but consistent increase in these sharing behaviors during the treatment phase in freeplay is evident for all seven children. The highest levels of sharing occurred during the final four session blocks, after

training had been completed for all the children. Overall, the children's sharing in free play increased from a mean level of 6% in baseline to 40% in treatment.

Insert Figure 1 about here

The display in Figure 1 of positive sharing behavior in the recess setting are divided into three phases: baseline, unprogrammed generalization, which corresponds to the introduction of treatment in freeplay and continuation of baseline procedures in recess; and programmed generalization, in which a minimal form of the freeplay treatment program was introduced directly in the recess setting. The unprogrammed generalization phase showed a slight increase in sharing for some of the children, although the changes were considerably smaller than in freeplay. Programmed generalization resulted in more substantial increases in sharing during recess for the first four subjects, Justin, Cory, Vance, and Tim. These effects were gradual with some variability, as in the beginning of freeplay treatment. Only two session blocks were available in the final condition for the last three subjects due to the end of the school year, and thus the effects of programmed generalization on these children are less clear. Overall, the children's levels of sharing in recess averaged 3% in baseline, 8% in unprogrammed generalization, and 30% in programmed generalization.

Figure 2 displays the children's cooperative play as a percentage of total intervals in the two observation periods. Following treatment introduction in freeplay, four of the seven children (Cory, Vance, Tim, and Kent) showed modest increases in cooperative play. Except for Cory, rates were low for all children during the first three session blocks of the treatment phase, when they were receiving direct teacher attention in freeplay

for sharing. Cory's cooperative play rate increased by the third block; he was receiving few instances of teacher'attention by this time. Across all the children, cooperative play levels increased from 8% to 15% between baseline and treatment phases.

Insert Figure 2 about here

Recess results showed Vance and Tim having slight increases in cooperative play during unprogrammed generalization. The other five subjects maintained their baseline rates. Justin and Cory showed increases in cooperative play during the programmed generalization phase. The increases started gradually and then continued after further exposure to the experimental procedures. With only three session blocks available in programmed generalization for Vance and Tim and two session blocks for Kent, Brandon and Dylan, their trends are harder to discern. Mean rates of cooperative play across all children in recess were higher than those found in freeplay, averaging 15% in baseline, 20% in unprogrammed generalization, and 40% in programmed generalization.

Cooperative play that was initiated by positive sharing behavior (an acceptance of an offer or request followed by cooperative play with the same materials and same children) is displayed on Figure 3. Five of the seven children showed increases in the proportion of cooperative play initiated by sharing during the treatment phase in freeplay, with no systematic changes for Kent or Brandon. Justin and Cory showed an interesting pattern, with their largest increases in sharing-initiated cooperative play occurring for the last five session blocks, which corresponds to the introduction of programmed generalization in the recess setting. For these two children, there may have been some generalization from recess to freeplay.

Insert Figure 3 about here

In the recess setting, five of the seven children noticeably increased the proportion of sharing-initiated cooperative play during the unprogrammed generalization phase, whereas Vance and Dylan showed no changes. During programmed generalization, Justin, Vance, and Brandon showed increases, and Cory and Tim remained the same. From the limited data shown on Kent and Dylan, it appears Kent showed a decrease and Dylan a slight increase. They could also be following the variable pattern with gradual increases found with the other children. Comparing the last recess phase with the treatment phase of freeplay showed equal percentages of the sharing-initiated cooperative play occurring in both settings for all children except Dylan. Overall, proportions of cooperative play initiated by sharing in freeplay averaged 15% in baseline and 43% in treatment; in recess, mean levels were 5%, 19%, and 42% across the three conditions, respectively.

Table 3 presents mean levels of ancillary target behaviors for individual children as rates of intervals per 30 minutes of observation in freeplay. Analysis of offers and requests to share showed that both behaviors increased substantially for all seven children from baseline to treatment. Across all children, mean baseline rates of offers and requests per 30 minutes were nearly equal, but following treatment, children showed a greater gain in rates of offers than of requests. Mean rates of accepting peers' offers and requests showed a substantial increase from baseline to treatment for all seven children. Two children decreased slightly their rates of refusing peers' offers and requests from baseline to treatment, whereas the other five children showed a slight increase in this response. A rise in mean rates of

both acceptances and refusals was expected, due to the large increase in the number of offers and requests children were initiating in the treatment phase.

Insert Table 3 about here

Rates of negative interactions (aggression, taking without asking, and verbally opposing others' play also are presented in Table 3. A decrease in mean rates of negative interactions following treatment is evident for six of the seven children. Verbal attention related to sharing (prompts to share and praise for sharing) from peers to subjects and from subjects to peers was also analyzed. There were virtually no occurrences of child attention to one another for sharing in baseline, although all seven children did so occasionally during the treatment phase. As would be expected, the children's mean rates of total interaction (any defined behaviors) showed an increase for all subjects from baseline to treatment.

Table 4 presents the mean percentages of accepting share initiatives for individual children across conditions in freeplay. Overall, the children accepted a higher proportion of requests and offers to share following treatment than in baseline. The greatest changes were seen in acceptances of requests to share as opposed to offers to share; however, because the children generally accepted each other's offers to share during baseline, there was little room for improvement in this response. The consistent increase in proportions of sharing initiatives accepted are impressive considering the concommitant increase in the total number of offers and requests made during the treatment phase.

Insert Table 4 about here

Tables 5 and 6 display the mean levels of ancillary target behaviors for individual children during recess. Results for recess are similar to trends obtained in freeplay with the most substantial changes occurring in the programmed generalization phase.

Insert Tables 5 and 6 about here

Mean rates of teacher attention for sharing (prompts and praise for sharing) and mean rates of general teacher attention (prompts and praise regarding material usage or answering children's questions) are displayed in Figure 4 as percentages of the total intervals of observation in freeplay and recess. For all seven subjects, teacher attention for sharing occurred only in the first three session blocks of freeplay treatment, except that Tim and Brandon also received a minimal level in the fourth block due to absences during the normal three-block training sequence. Justin received one instance of teacher attention for sharing unrelated to training in both baseline and treatment. The children received slightly differing levels of teacher attention for sharing during training, which appeared to be in response to individual child needs. There were no instances of teacher attention for sharing in recess throughout the study. General teacher attention during both freeplay and recess remained stable across all conditions. In freeplay, mean levels of general teacher attention across all children were at 3% in both baseline and treatment; in recess, mean levels were at 4%, 4%, and 5% across the three conditions, respectively.

Insert Figure 4 about here

Results from the sociometric interviews administered prior to and following treatment showed that, before training, , three children described

sharing partially as "giving," and four children could not give a definition. Following training, all seven children described sharing as "giving and asking," with three children listing all four components (asking, giving, keeping, and letting a child have it) used in training.

Sociometrics of the child with whom others least liked to play prior to treatment were consistent between subjects, with five children listing Kent as the least preferred child and one child spontaneously naming Kent as a second choice. Justin and Brandon each received one nomination. Following treatment, Kent again received five nominations, and Justin and Brandon each received one, indicating no systematic change in responses. Nominations for the child with whom others most liked to play prior to treatment varied considerably, with Cory receiving two nominations and one each for Tim, Justin, Dylan, Brandon, and Vance. Following treatment, Vance, who showed the greatest improvement in positive sharing skills, received five nominations and Justin and Cory each received one. These findings are encouraging, as Vance was very isolated and quiet prior to treatment and the improvement in his rating by peers is substantial, especially considering the simplicity of the test.

Prior to training, reasons the children gave for not liking to play with the child they nominated as "least like to play with" were mostly related to physical or verbal aggression. For example, they stated that "he jumps on me," "he knocks me down," "he laughs at me," or that he takes their toys. Following treatment, their reasons remained the same, with four of the five children who nominated Kent again mentioning "knocking me down" or "making me fall." Kent is a very large child with gross motor deficits and does often bump into other children. He showed a large decrease in negative behaviors

following treatment, but it is possible his size and general clumsiness still lead to his being perceived as aggressive by his peers.

A sociometric rating scale also was administered prior to and following treatment in which each child gave a rating of one to three ("don't like to play with" to "like to play with a lot") to all other children for both freeplay and recess. Each child could receive up to 18 total points. The results were stable, with no increases or decreases of over two points from pre- to post- training in either setting for any child except Brandon who increased four points in the recess rating, and Dylan who increased four points in both the freeplay and recess ratings. Prior to training, only Tim received the full 18 points, and he received them for both settings. In the post-training ratings, Vance was the only child to receive the full 18 points for freeplay, while Vance, Cory, Tim and Dylan received the full 18 points for recess. Kent received the lowest scores in both settings and across both conditions, correlating with his nominations as the child with whom his peers least liked to play. Overall, the sociometric ratings were relatively stable across conditions and settings.

Discussion

This study evaluated several aspects of a training and generalization procedure to teach behaviorally, cognitively, and language handicapped preschoolers to share during classroom freeplay and recess periods. The present results indicate that handicapped children can learn to share in freeplay using a 12-day training package of instructions modeling, behavioral rehearsal, and teacher prompts and praise for sharing, with an ongoing self-monitoring and positive reinforcement procedure replacing direct teacher attention. Training in freeplay resulted in a slight increase in sharing for some of the children in a recess period as well, with programmed

generalization directly in recess resulting in more substantial increases for the first four children in this condition. Desired changes also were observed in several collateral behaviors as a result of sharing training.

Major Treatment Effects on Sharing

Positive sharing, the combination of subject offers, requests, and acceptances of peers' offers and requests, increased considerably for all seven children following treatment in freeplay. The increases in positive sharing were gradual but consistent across the treatment condition and remained so following the removal of teacher attention for sharing. This finding supports previous research that has shown increases in sharing using a treatment package of instructions, modeling, behavioral rehearsal, and teacher attention for sharing (Barton, 1981; Barton & Ascione, 1979; Barton & Bevirt, 1981; Bryant & Budd, Note 1). It also extends this research by demonstrating maintenance of training effects through substituting teacher attention for sharing with a reinforced self-monitoring procedure. However, teacher attention for sharing was an integral part of the initial training, assisting the children in applying their sharing skills to specific situations and attaining the criterion sharing level needed to be exposed to the reinforcement system.

All of the children showed a progressive increase in sharing rates across treatment in freeplay with a fairly uniform increment during the final four to five session blocks of the study. This jump in freeplay rates of sharing near the end of the study suggests an interactive effect across children after all subjects had completed training. The increase also coincides with the introduction of programmed generalization in recess, which may have produced some cross-setting in freeplay as well.

The self-monitoring procedure used in the present study contains some components of correspondence training along with self-assessment and reinforcement. Its successful use correlates with the similar findings of Rogers-Warren and Baer's (1976) research utilizing correspondence training to increase sharing, and Holman and Baer's (1979) research utilizing self-monitoring procedures to increase on-task behavior. The self-monitoring procedure in the present study has the advantage of requiring no in-session child recording, thus allowing maximum attention to their freeplay activities. Also, children's reports of their sharing behavior following freeplay were accurate with little training. This was aided by having them describe the child and material involved in each sharing episode and by keeping the materials available as cues to help them remember.

Meichenbaum's (1979) recommendation of following the "say then do" sequence in self-monitoring programs was effective in the present study, especially when the intentional statement each child made prior to freeplay was individualized for any child demonstrating problems in a particular component of sharing the previous day. For example, when Cory demonstrated low rates of accepting other children's requests and Justin was initiating frequent requests but no offers, their intentional statements were modified to emphasize these deficits. Intentional statements also were modified to include specific children or materials involved in the child's deficits, such as having Cory state, "I'm going to ask and give a lot, and let Vance have things when he asks," or "I'm going to ask and give a lot, and I won't keep the helicopter when someone asks for it." Vance's intentional statements focused on teaching him to get peers' attention at the outset of offers and requests. Because he was very shy, he was first taught to tap peers on the shoulder before addressing them, then to state their name with the tap, and

finally to speak in a loud enough voice so they could hear him without needing to use a physical gesture. The individualization of the intentional statements appeared to be very useful, considering the different types and levels of handicaps the children displayed and the complexity of the sharing behaviors they had to learn. The effectiveness of treatment across all the children supports Barton's (in press) and Bryant and Budd (Note 1) recommendation of analyzing the response components of sharing and modifying packaged training components to meet the needs of individual children.

The treatment package used in the present study had the additional advantage of allowing the children to analyze their own sharing behavior each day when they stated how many times they engaged in each of the four components of sharing and marked their sharing boards to display these components. If there were deficits in any area, the children themselves could describe what components needed improvement and were then prompted to include this information in their intentional statements prior to freeplay the following day. Supplemented with the sharing information collected on the sharing checklist and interval recording data, detailed information on each child's sharing responses was available each day to guide the treatment process.

Since the treatment package in this study contained several components, the individual role of each component was not experimentally tested. However, anecdotally, the use of positive reinforcement appeared to be necessary for the success of the treatment. Stickers, certificates, and praise from the teacher all provided reinforcement for children who successfully met the sharing criterion. Providing a changing pool of novel stickers each week, and allowing children to see the number of stickers previously collected on the certificate each day, helped maintain their reinforcing properties.

Children expressed an increased interest in sharing, especially in the stickers and certificates, as the number of children in treatment increased. After two pairs of children had been trained, the children spontaneously developed a pattern after freeplay of displaying their stickers to each other, asking who had received a sticker and why, and dispensing praise to those who had stickers. Children also would approach other teachers and aides in the classroom to display their stickers with comments such as "I shared," and "I asked and gave a lot" to elicit further praise. These two forms of unplanned positive reinforcement appeared very effective in increasing sharing behavior. During treatment, children spontaneously prompted each other to share during the freeplay period with statements such as, "you need to let me have it," "you need to share," and "you won't get a sticker if you won't let me have it." These statements had a low frequency, and occurred most often in response to a blatant refusal of an offer or request. In summary, all components of the treatment package appeared to have contributed to the success of the treatment. The individualization of the daily intentional statements before freeplay and the spontaneous peer reinforcement following freeplay appeared to be especially effective.

Generalization Effects

The increases in positive sharing obtained during freeplay showed slight unprogrammed generalization to recess for some of the children, although rates remained considerably lower than in freeplay. This result contrasts with Holman and Baer's (1979) finding of generalization across settings using a self-monitoring procedure as well as Barton and Ascione's (1979) finding of generalization using a similar sharing training package. The minimal unprogrammed generalization effects across settings may be explained partially by the differences in materials, in that the play equipment in recess was

large and much of it was immovable. Thus sharing in recess entailed different and more elaborate offers or requests ("Do you want to go down the slide with me?" "Can I have a ride on your wagon?") than were necessary for the freeplay toys ("Here's a block," "Can I have the car?"). The larger total play area in recess also may have had an effect by reducing the proximity of the children. Finally, recess differed from freeplay in being less structured toward specific play activities. Children were more likely to shift from one toy or piece of equipment to another, or simply run around, in recess than in freeplay. Most other studies assessing generalization of sharing have used an art period as the generalization setting (Barton, in press). The minimal transfer effects seen in the present study compared to previous sharing research may well have been related to the large differences between the training and generalization settings.

The programmed generalization procedure in recess utilized the group discussion and reinforcement following recess and in-session peer prompts that had developed spontaneously in freeplay, combined with combined with brief initial training and post-session teacher reinforcement. The first four children involved in programmed generalization showed definite increases in positive sharing, with results less clear for the last three children due to the brevity of their inclusion in this condition.The results support Stokes and Baer's (1977) conclusion that generalization to a second setting often is insufficient without some additional measures but can be enhanced with a procedure whose cost or extent is clearly less than direct intervention with the original treatment procedure. An interesting question for future research concerns whether the less intensive, programmed generalization procedure would have been effective as the initial method of training sharing.

Analysis of Individual Sharing Behaviors

Analysis of offers and requests as individual behaviors in freeplay showed significant increases with treatment for all seven children. Across all children, baseline rates of offers and requests were equal, with offers showing greater treatment gains. This result differs from Bryant and Budd's (Note 1) finding that requests occurred more frequently than offers both before and after training and emphasizes the intersubject variability found between the different sharing components. Final mean rates of offers, requests, and acceptances were somewhat lower in recess than in freeplay, which could have been related to the lack of availability of smaller toys and materials that could readily be shared with others in recess.

With the increased rates of share initiatives during treatment, the absolute frequency of all seven children's acceptances of peers' offers and requests increased in freeplay and recess. The absolute frequency of refusals also showed a slight increase for the majority of the children in both settings; however, the proportion of offers and requests accepted versus refused increased for all seven children by the final conditions in both settings. Bryant and Budd (Note 1) observed similar effects. By contrast, Warren, Rogers-Warren, and Baer (1976) found the percentage of acceptances decreased as the level of offers and requests received increased. In the present study as well as Bryant and Budd's research, acceptances were reinforced; based on informal observation, this reinforcement was helpful in maintaining acceptances, especially for requests. Reinforcement of request acceptances seemed to provide some compensation for relinquishing novel or highly valued toys and to produce more receptivity to children whose requests were habitually ignored or refused.

For all conditions in both settings, children were more likely to accept a peer's offer than request. Differences in acceptance levels between offers and requests were largest in baseline, with children's rates of request acceptance showing serious deficits for the majority of the children in both settings. However, the treatment procedure was effective in overcoming these deficits. Related research findings on the differences between the likelihood of acceptance of requests versus offers are not available in the literature at this time.

Analysis of Related Individual Behaviors

The examination of children's negative interactions of aggression, taking materials without asking, and opposing others' play showed a substantial decrease in mean rates for all seven children in freeplay, and for six of seven children in recess. The seventh child showed a fractional increase from a near-zero baseline rate. This reduction is consistent with other research findings where a decrease in negative behaviors follows reinforcement of an incompatible response, and with Bryant and Budd's (Note 1) findings of a reduction in negative interactions with increases in sharing.

Examination of the collateral behavior of cooperative play showed a modest increase in freeplay rates for four of the seven children, after depressed rates during the sessions in which teachers were providing direct attention for sharing. For recess, three children showed slight increases in cooperative play during unprogrammed generalization, and the first two children introduced to programmed generalization showed continuing increases. Trends were not clear for the other five children due to the short time available in this condition. The increases in cooperative play do not support Walker, Greenwood, Hops, and Todd's (1979) finding that reinforcing the initial approach and response components of social interaction suppressed

ongoing behavior. In the present study the very substantial increases in sharing initiatives and acceptances also did not suppress ongoing cooperative play.

An examination of sharing-initiated cooperative play showed an increase for the majority of the children in both freeplay and recess. The increases in recess were noticeable for five of seven subjects during the unprogrammed generalization phase, which suggests that the nature of the children's share initiatives may have changed somewhat following freeplay training and that these changes may have carried over to recess, even though the absolute frequency of initiatives in recess increased only slightly. Thus it appears increased sharing had a positive effect on ongoing cooperative play. To date, other research has not examined the relationship between sharing and cooperative play, but the findings of the present study are encouraging, with the increase in cooperative play providing another justification for sharing training.

Teacher Behaviors

General teacher attention was low and stable across all conditions. The majority of general teacher attention involved remainders on correct use of materials and following classroom rules. Teacher attention for sharing occurred during session blocks in which the children were trained in freeplay, and never occurred in recess. It is interesting to note the different amount of teacher attention for sharing utilized with individual children during their training, which appeared to be in response to individual child needs. The stability in levels of general teacher attention across the study clarifies that it was not responsible for the observed changes in children's sharing across the study.

Procedural Variables

In order to enhance the naturalistic aspects of the present study, the regular classroom teacher and aides were used as treatment agents, the children were trained in the actual classroom using regular classroom materials, data were gathered in two regular class periods by familiar adults, and, following the 12-day training period, no interventions were carried out directly in freeplay or recess periods.

Experimental control was enhanced by regulating the number and composition of children in the freeplay setting and systematically rotating the play materials from a pool of novel and highly valued items that were available only during the observation period. These procedures follow recommendations by Barton (in press) and were implemented successfully.

Major Findings

Major findings of the present study are summarized as follows: (1) the present adaptation of the sharing training package developed by Barton and Ascione (1979) and utilized by Bryant and Budd (Note 1) successfully increased the positive sharing behaviors of seven handicapped preschool children in two class periods; (2) self-monitoring and reinforcement procedure successfully replaced direct teacher attention for sharing as a means of maintaining the effects of sharing training; (3) the slight amount of unprogrammed generalization to recess was enhanced by adapting a less intensive form of freeplay treatment directly to recess; (4) a peer support group developed spontaneously as an outgrowth of freeplay training and appeared to provide effective reinforcement for sharing behaviors; (5) training led to substantial increases in proportions of sharing initiatives accepted in both settings, even though the absolute frequency of both acceptances and refusals increased for the majority of children; (6) sharing training resulted in desired

supplemental changes in the children's social behavior, including decreased rates of negative interactions, increased cooperative play, and increased sharing-initiated cooperative play.

Limitations

Application of findings from the present study are limited because of the small sample size and the fact that subjects were obtained from a special classroom and displayed varying degrees of behavioral and other handicaps. There is a concern for the validity of the results because of the high rates of sharing behaviors obtained. Children in the present study averaged 2.1 intervals of positive sharing behaviors per minute during treatment, compared to treatment rates of .8 per minute in Bryant and Budd's (Note 1) study and .7 per minute found in normative data on preschool children (Tremblay , Strain, Hendrickson, & Shores, 1981). However, the high acceptance rates, increased cooperative play, and decreased negative interactions obtained in the study argue against the presence of any negative side-effects from the high rates of sharing behavior.

Future Research

Future investigations should include a more detailed analysis of the qualitative aspects of sharing behavior. This analysis could examine the verbal content of share initiatives to determine their purpose (e.g., to get something from another child versus to promise joint use of a play material), timing (e.g., requesting something right after a child began play with it versus after the child has had it several minutes), and social tactfulness (e.g., whether the initiatives are stated politely versus in the form of demands). Similar analyses could be conducted on children's responses to share initiatives. This qualitative assessment could then document more subtle changes in sharing behavior, differentiate natural from artificial

sharing patterns, and provide more specific guidelines for training socially desirable sharing to children of varying developmental levels.

Future research also should continue to analyze the different sharing components on different populations to evaluate if the variability between subjects and settings found in this study will be replicated in populations of normal preschool children or children of different handicaps or ages. Another possibility for future research is the implementation of the programmed generalization procedure used in recess to a normal classroom to evaluate if regular classroom teachers could effectively implement the procedure and if normal preschool children could increase their sharing behaviors without the intensive training procedures used in freeplay. Sharing generalization to other settings such as the home or outdoor recess should be evaluated, plus the long-term maintenance of the treatment effects.

Conclusion

In conclusion, the present study demonstrated that behaviorally handicapped, cognitively delayed and language deficient preschool children could be taught to share in a freeplay period using a 12-day treatment package of instructions, modeling, behavioral rehearsal, and teacher prompts, supplemented with ongoing reinforced self-monitoring. It also showed that generalization to a recess setting could be enhanced with the implementation of a minimal adaptation of the freeplay treatment package. These training effects were maintained without in-session teacher prompts and praise and were associated with other positive child patterns of decreased negative interactions and increased cooperative play.

Reference Notes

1. Bryant, L.E. & Budd, K.S. Teaching behaviorally handicapped children to share. Paper presented at the annual convention of the Association for Behavior Analysis, Milwaukee, Wisconsin, May 1982.

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Table 1

Descriptive Information About Subjects

Name	Age at Start of Study	Race	Degree of Delay		
			Cognitive	Language	Motor
Justin	5.9 yrs	Black	Borderline	Moderate	None
Cory	4.3 yrs	Caucasian	None	None	None
Vance	5.3 yrs	Black/ Caucasian	None	None	None
Tim	5.2 yrs	Caucasian	Mild	Mild	None
Kent	5.0 yrs.	Black/ Caucasian	Borderline	Mild	Mild
Brandon	4.6 yrs	Caucasian	Borderline	Mild	None
Dyland	5.8 yrs	Caucasian	Moderate	Severe	Mild

Table 2

Ranges and Means of Reliability Percentages Across Individual Conditions and Settings

Behavior

Child Behaviors	Freeplay		Recess		Mean Percentage Across Conditions and Settings
	Range	Mean	Range	Mean	
Offers to Share	BL 75-100	93%	BL 88-100	96%	96%
	TR 77-100	96%	UG 67-100	93%	
			PG ---	100%	
Requests to Share	BL ---	100%	BL ---	100%	98%
	TR 78-100	98%	UG---	100%	
		98%	PG 93-96	95%	
Acceptances of Offers and Requests	BL 75-100	94%	BL 83-100	94%	97%
			UG ---		
	TR 83-100	96%	PG 93-100	98%	
Refusals of Offers and Requests	BL ---	100%	BL ---	100%	97%
			UG ---	100%	
	TR 95-100	97%	PG ---	100%	
Taking without Asking	BL 75-100	95%	BL 67-100	94%	89%
			UG 50-100	89%	
	TR 50-100	92%	PG ---	100%	
Opposing Play	BL 86-100	96%	BL 67-100	89%	88%
			UG 50-100	88%	
	TR 50-100	83%	PG ---	---	
Aggression	BL 67-100	81%	BL ---	100%	88%
			UG *50-100	89%	
	TR 75-100	95%	PG ---	---	
Cooperative Play	BL 98-100	99%	BL ---	100%	94%
			UG 71-100	95%	
	TR 67-100	87%	PG 90-97	94%	

Child Behaviors	Freeplay		Recess		Mean Percentage Across Conditions and Settings
	Range	Mean	Range	Mean	
Peer Attention for Sharing	BL ---	---	BL ---	---	93%
			UG ---	100%	
	TR 83-1200	93%	PG ---	---	
Other Peer Verbal	BL 96-100	97%	BL ---	---	95%
			UG 80-100	94%	
	TR 80-100	94%	PG 91-100	96%	
Teacher Behavior					
Attention for Sharing	BL ---	---	BL ---	---	100%
			UG ---	---	
	TR ---	100%	PG ---	---	
General Teacher Attention	BL 75-100	87%	BL 75-100	91%	87%
			UG 88-100	98%	
	TR 60-100	79%	PG ---	100%	

Table 3

Mean Rates of Target Behaviors per 30 Minutes
Across Experimental Conditions in Freeplay

	Justin	Cory	Vance	Tim	Kent	Brandon	Dylan	All Subjects
Offers								
BL	7.7	3.7	.7	1.1	7.4	2.6	1.4	3.4
TR	23.3	28.2	39.9	18.9	30.3	24.0	19.9	26.4
Requests								
BL	4.5	3.7	0	2.4	5.3	3.6	2.7	3.2
TR	17.0	14.5	37.8	12.9	19.7	23.4	11.1	19.1
Acceptances								
BL	3.7	3.7	5.1	6.8	4.4	6.1	5.2	5.1
TR	18.3	25.4	41.3	20.4	38.0	27.9	21.0	26.4
Refusals								
BL	2.9	2.6	1.4	4.6	.7	3.4	3.8	1.9
TR	3.1	4.3	.2	6.7	2.2	3.9	2.3	3.6
Negative Interactions								
BL	7.3	8.1	1.4	3.8	15.3	3.6	2.7	6.2
TR	4.0	2.5	0	1.0	1.5	4.8	1.2	1.8
Attention for Sharing from Peers								
BL	0	0	0	0	0	0	0	0
TR	.2	.3	.5	2.0	.4	.3	2.1	.7
Attention for Sharing to Peers								
BL	0	.4	0	0	0	0	0	0
TR	1.2	1.4	1.4	1.5	1.1	.3	1.2	1.2
Total Intervals of Interaction								
BL	101.4	107.6	19.3	60.9	79.4	61.5	39.4	63.5
TR	105.3	152.1	103.1	88.1	115.0	87.8	72.5	105.3

Table 4

Mean Percentages of Accepting Share Initiatives Across Experimental Conditions in Freeplay

	Justin	Cory	Vance	Tim	Kent	Brandon	Dylan	All Subjects
Subject Acceptances of Peer Offers and Requests/ Total Peer Offers and Requests								
BL	56%	59%	96%	60%	86%	91%	58%	73%
TR	86%	85%	99%	80%	95%	85%	90%	88%
Peer Acceptances of Subject Offers and Requests/ Total Subject Offers and Requests								
BL	57%	65%	100%	38%	59%	61%	60%	59%
TR	78%	87%	90%	95%	88%	85%	87%	86%
Subject Acceptances of Peer Offers/ Total Peer Offers								
BL	100%	100%	100%	87%	85%	100%	63%	87%
TR	92%	82%	100%	96%	98%	85%	95%	92%
Subject Acceptances of Peer Request/ Total Peer Requests								
BL	13%	14%	88%	26%	87%	80%	44%	53%
TR	78%	90%	99%	58%	90%	86%	80%	85%

Table 5

Mean Rates of Target Behaviors per 30 minutes
Across Experimental Conditions in Recess

	Justin	Cory	Vance	Tim	Kent	Brandon	Dylan	All Subjects
Offers								
BL	1.2	6.1	.7	.5	1.2	.3	.9	2.2
UG	4.9	5.0	1.6	3.7	3.7	3.8	1.1	3.8
PG	14.7	23.4	27.5	7.6	10.3	11.6	4.7	15.8
Requests								
BL	2.4	11.2	.7	1.8	1.8	2.6	5.1	2.9
UG	12.1	5.7	0	5.2	5.6	8.6	12.2	7.0
PG	19.6	14.4	37.5	19.7	6.9	18.9	9.4	16.8
Acceptances								
BL	1.2	3.1	3.7	2.3	.9	1.2	1.4	1.8
UG	1.4	3.4	10.4	4.4	.9	2.6	4.4	4.1
PG	14.0	23.4	32.5	30.3	17.1	10.2	6.3	19.4
Refusals								
BL	4.2	4.1	1.7	.9	.9	.9	1.0	1.8
UG	1.0	1.7	1.1	.7	.9	2.9	3.3	1.5
PG	2.8	1.4	2.5	1.5	0	5.8	1.6	2.4
Negative Interactions								
BL	6.6	13.2	.7	4.6	17.6	1.2	3.4	6.3
UL	2.4	4.7	0	2.2	3.7	1.0	3.3	2.7
PG	.7	0	0	1.5	1.7	1.5	1.6	.8
Sharing Attention By Subject								
BL	0	0	0	0	0	0	0	0
UG	0	0	0	0	0	0	0	0
PG	.7	.7	11.3	1.5	0	0	1.6	2.1
Sharing Attention From Peers								
BL	0	0	0	0	0	0	0	0
UG	0	0	0	0	0	0	0	0
PG	1.4	4.8	6.2	7.6	0	7.3	0	2.2
Total Intervals Interaction								
BL	82.8	159.7	29.0	32.1	40.1	41.6	28.4	46.3
UG	72.8	93.9	65.7	54.6	48.7	59.4	64.4	71.0
PG	108.6	129.2	137.5	87.7	90.9	87.1	61.6	106.1

Table 6

Mean Percentages of Accepting Share Initiatives Across Experimental Conditions in Recess

	Justin	Cory	Vance	Tim	Kent	Brandon	Dylan	All Subjects
Subject Acceptances of Peer Offers and Requests/ Total Peer Offers and Requests								
BL	22%	43%	69%	71%	75%	57%	57%	50%
UG	67%	67%	90%	86%	50%	67%	57%	73%
PG	83%	94%	93%	95%	100%	64%	80%	89%
Peer Acceptances of Subject Offers and Requests/ Total Subject Offers and Requests								
BL	83%	59%	75%	40%	70%	50%	22%	51%
UG	59%	84%	67%	42%	90%	46%	33%	59%
PG	94%	91%	85%	78%	90%	76%	100%	88%
Subject Acceptances of Peer Offers/ Total Peer Offers								
BL	0%	67%	100%	100%	75%	80%	50%	64%
UG	100%	78%	86%	86%	100%	50%	--	77%
PG	71%	100%	100%	92%	100%	60%	75%	88%
Subject Acceptances of Peer Requests/ Total Peer Requests								
BL	22%	25%	62%	50%	0%	0%	100%	40%
UG	60%	50%	93%	--	0%	100%	43%	69%
PG	100%	89%	82%	89%	100%	100%	100%	90%

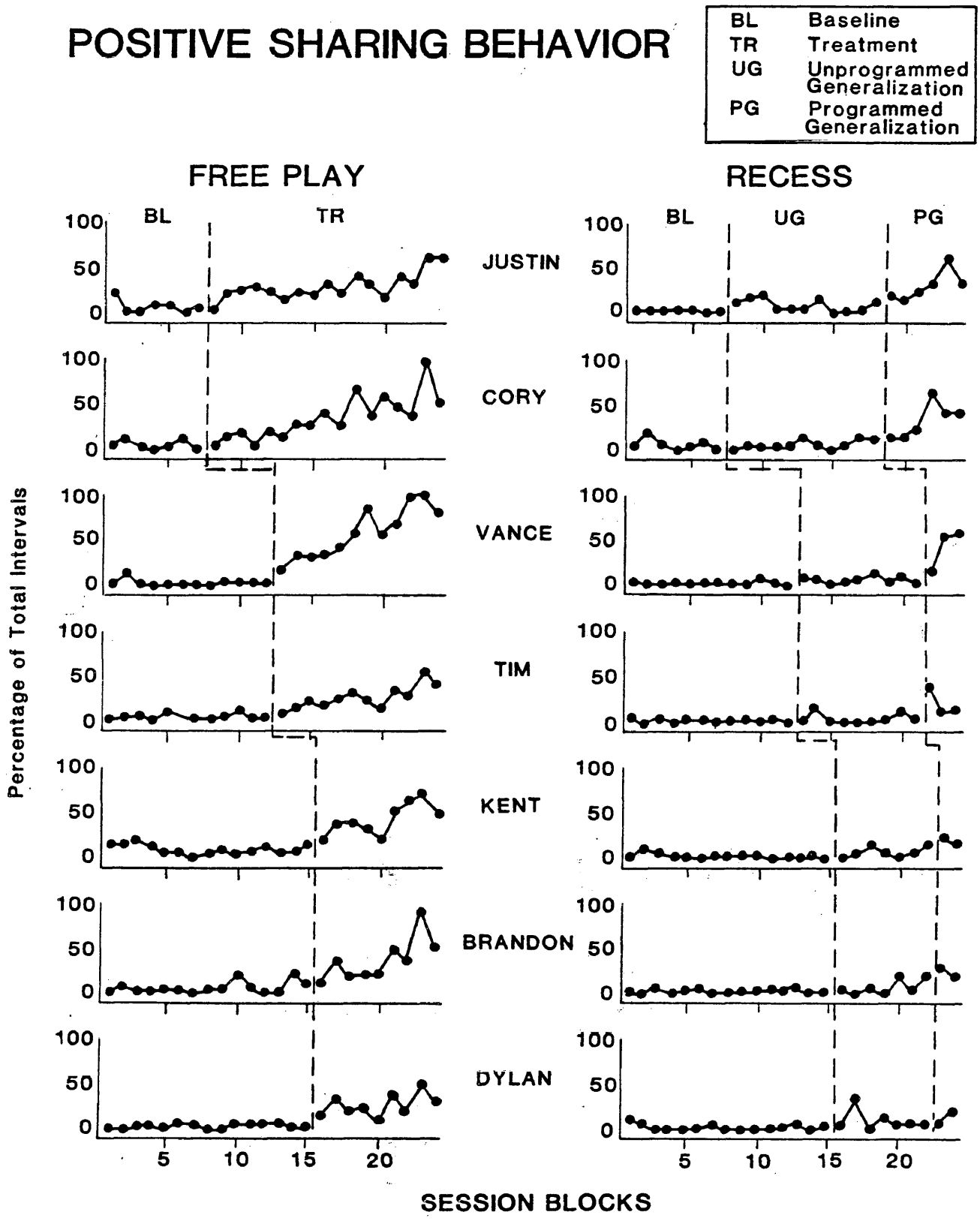
Figure Captions

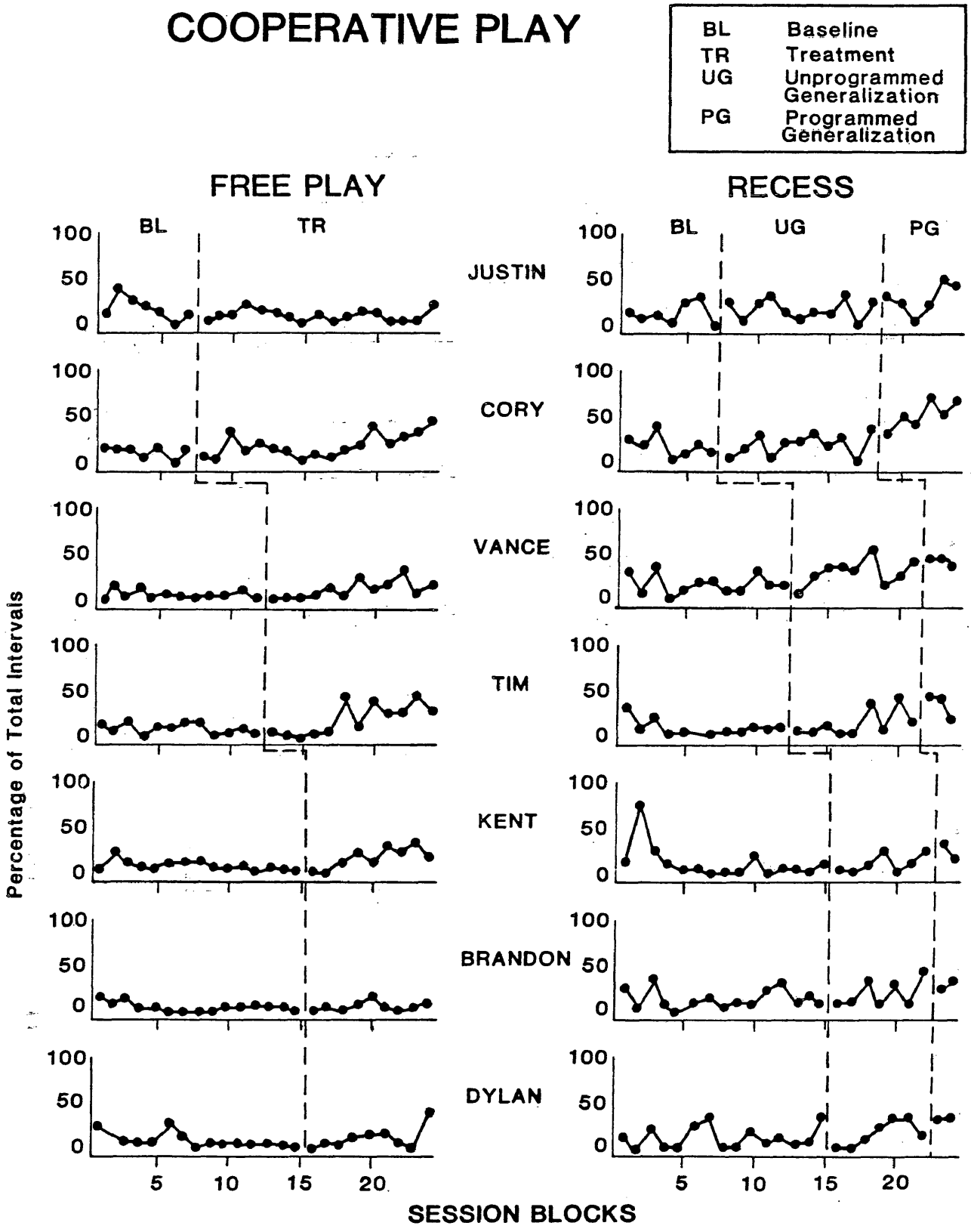
Figure 1. Levels of positive sharing behavior in freeplay and recess for individual children as percentages of total intervals of observation. Dashed vertical lines indicate changes in experimental conditions.

Figure 2. Levels of cooperative play in freeplay and recess for individual children as percentages of total intervals of observation. Dashed vertical lines indicate changes in experimental conditions.

Figure 3. Levels of cooperative play in freeplay and recess for individual children as percentages of total intervals of cooperative play. Dashed vertical lines indicate changes in experimental conditions.

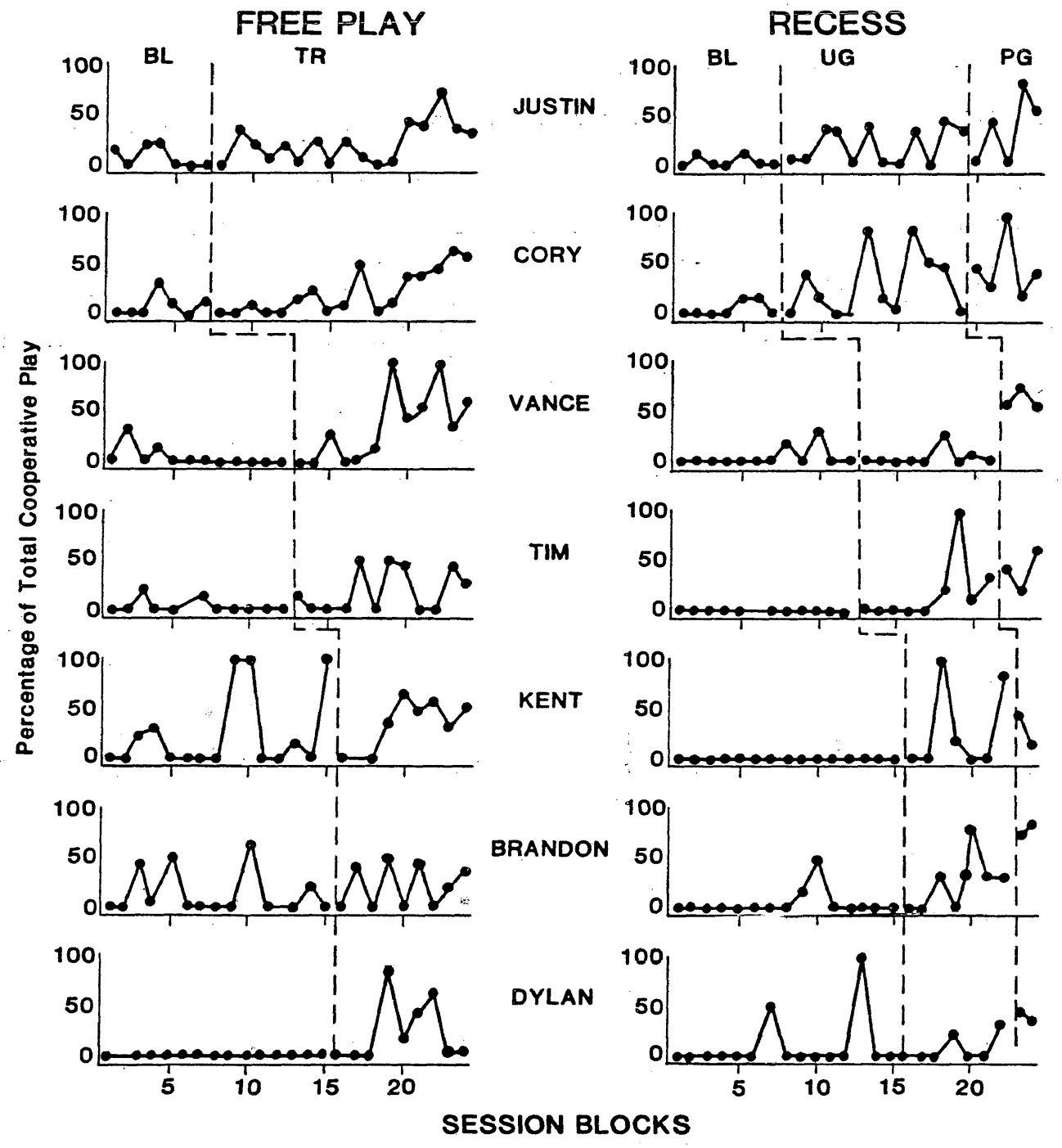
Figure 4. Levels of general teacher attention and teacher attention for sharing in freeplay and recess to individual children as a percentage of total intervals of observation. Dashed vertical lines indicate changes in experimental conditions.


POSITIVE SHARING BEHAVIOR
BL Baseline
TR Treatment
UG Unprogrammed Generalization
PG Programmed Generalization
FREE PLAY
RECESS
BL
TR
UG
PG
JUSTIN
CORY
VANCE
TIM
KENT
BRANDON
DYLAN
100
50
0
5
10
15
20
Percentage of Total Intervals
SESSION BLOCKS

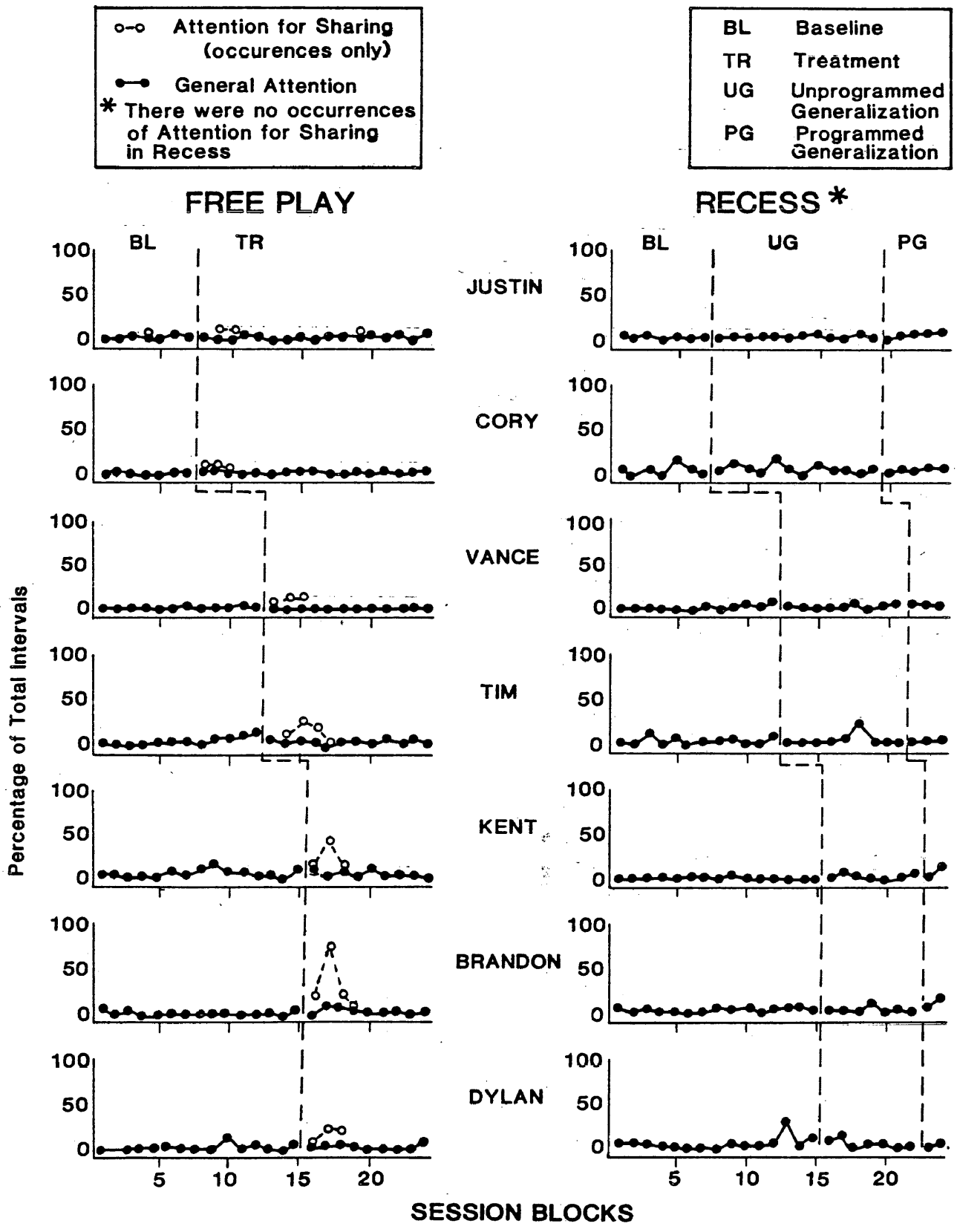

COOPERATIVE PLAY
BL Baseline
TR Treatment
UG Unprogrammed Generalization
PG Programmed Generalization
FREE PLAY
RECESS
BL
TR
UG
PG
JUSTIN
CORY
VANCE
TIM
KENT
BRANDON
DYLAN
100
50
0
5
10
15
20
Percentage of Total Intervals
SESSION BLOCKS

SHARING INITIATED COOPERATIVE PLAY

BL	Baseline
TR	Treatment
UG	Unprogrammed Generalization
PG	Programmed Generalization



TEACHER ATTENTION



APPENDIX A

OBSERVATION CODE AND RECORDING RULES

PASS OBSERVATION CODE
FREE PLAY AND RECESS
1981-82

Seven children will be observed alternately during the 30-minute free play period from 9:00 to 9:30 A.M. and the 20-minute recess period from 10:15 to 10:35 A. M.. This will be done each day, Monday through Thursday. The observer will record 25 child behaviors. An alternating observation system is used, with each child being observed for 1 minute, then the observer switches to the next child. This pattern continues throughout the observation period. In free play, only children in the dramatic play/building area are counted, and only when there are two or more children in the area. In recess, all children are counted in a pre-determined order. The occurrence of the 25 behaviors will be recorded in continuous 10-second intervals. A sample grid is provided below.

Behaviors	Symbol		Grid Location
Child Behaviors:	Target	Peer	
Offers to Share	0	0	Grid 1
Requests to Share	R	R	Grid 1
Acceptances	+	+	Grid 2
Refusals	-	-	Grid 2
Aggression	A	A	Grid 5

Behaviors	Symbol		Grid Location
Opposing Play	O	O	Grid 5
Taking	T	T	Grid 5
Positive Verbal Attention	+		Grid 3
Other Verbal Attention	V		Grid 3
Positive Attention for Sharing	S+	S+	Grid 3,4
Prompts to Share	SV	SV	Grid 3,4
Cooperative Play	C		Grid 6

Teacher Behaviors These are scored from an audio tape.

Positive Verbal Attention	+	Grid 7
Other Verbal Attention	V	Grid 7
Positive Attention for Sharing	S+	Grid 7
Prompts to Share	SV	Grid 7

The observer also records the child's first initial, the number of peers in the area, and the peer's first initial in the space above the grid for the free play area. For the recess period, the activity the recorded child is engaged in is also noted above the grid for each 60-second interval. There is a set order of observation in the recess period. The order is Craig, Vincent, Tommy, Chris, Billy, Joseph, and Paul. This order is rotated daily.

When there is no one or just one child in the dramatic play/building area a slash is drawn diagonally through the interval. No one in the area or child alone are also noted in the space above the grid.

In recess, if the child you are recording is alone, with no one within six feet of them and no cooperative play involvement, draw the diagonal slash through each interval this occurs and note their activity at the top of the grid.

If an interval is missed by the observer, due to recording time or

distraction, it is crossed out with an X.

If the target child leaves the dramatic play/building area during any interval, or a child leaves the designated area in recess, this is noted by a double diagonal slash.

	Dramatic Play/Building	Recess
Target alone	/	/ plus activity
Target leaves area	//	//
Missed Interval	X	X

CHILD BEHAVIORS

Offers to Share Play Materials with Peer

Any occasion when a child (1) verbally or physically suggests that a peer have, take, touch, manipulate, trade, or cooperatively use a material from the available play materials in the dramatic play/building area, or (2) verbally or physically invites a peer to join in a particular activity. The offer must suggest that the material will be traded, passed, or jointly used. The context emphasizes other children or joint activity where the subject has control of some of the materials.

For large scale activities where equipment or materials cannot be given, the child may offer a peer access to the equipment. Equipment is then shared or relinquished. If offers of materials or access to equipment are stated in vague terms, such as "Here" or "Come on", the situational context must be clear. This would include an inviting gesture or action accompanying or immediately following the offer.

Offers that suggest future use, such as you can have this later, aren't scored. Neither are offers involving imagined objects, such as offering to give the other child an egg when there is no food available. Subtle implication of fantasy play, such as "You are the police now", and implying the other child should now take the police hat, are not scored.

Examples: We can both play together; (Target has control of the toy. Here is a block (handing the block); You can have this car; Ride in the wagon with me; I'll share these blocks with you; Do you want to play with the animals; Here (pointing to or handing a car); nonverbally handing an object such as a block or putting a hat on another

child's head; Let me show you how to do it (with the toy in the possession of the offerer, who then gives or uses the toy with the other child); You can jump over it (while holding a stick); Hands a fish to another child, the other child takes it and throws it down, score as an offer, regardless of the child's response; Come and slide with me; Do you want me to push you (on the scooter board); You can pour the sand in now (referring to the sand wheel); Do you want to get in the barrel with me?

Exclusions: Let's go; Come on; Here's a car (doesn't specify an exchange of the toy); You can have it later; Here's a Big Mac for you (when there is none available).

Requests to Share Play Materials with a Peer

Any occasion when a child (1) verbally asks or requests that a peer provide him/her a play material or cooperatively use the materials from the available free play activities, (2) verbally asks or requests to join in a particular activity with a peer, or (3) verbally demands that a peer provide him/her a play material, cooperatively use the material, or join in an activity (such as I need.., Give me.., Let me..,). The request must suggest that the materials must be traded, passed, or jointly used. Requests include implications of future use of a material, such as asking a child to play with him/her or if she can help him/her. In a request the materials are in the control of a peer or neither child.

For large scale activities where equipment can't be moved, the child may request that a peer allow him/her access to the equipment. The equipment is shared or relinquished. If requests for materials or access to equipment or activities are stated in vague terms, such as "Give me", the object context must be clear (such as pointing gesture or action accompanying or immediately following the request).

Examples: Let me show you how to do it (with hand out to take object); Gimme that; I need that; I had it first (need some physical gesture with this to clearly make it a request); Push my scooter board, please; I want a turn on the slide; It's my turn (with hand out to take object or standing beside or trying to touch a large equipment); I want to get in the tunnel; Let me pour the sand in the bucket; Can I have a block; House, please; May I play with you; Please (pointing to a toy); Can I ride in the boat; You can have the bed if

I can have the chair (combination of offer followed by a request); I'm the policeman now so give me the hat; Can I play with you; Can I help you; I need my people; Let me have that now; Give me the doll; Give me some; I want some of that;

Exclusions: Come on; Let's go; A car; Please (with no gesture to signify that an object is desired); Come here; just holding hand out to get an object, with no verbalization.

Responses to Requests or Offers to Share

Acceptance of offers or requests to share include verbal and non-verbal behaviors indicating a child's acceptance of another's offer or request to have, take, touch, manipulate, trade, or cooperatively use a material, or join in a particular activity. Acceptance includes all instances where a child's behavior allows another child to share physically after being offered a material or being asked to give up a material (saying yes to a request or taking the material that has been offered). Acceptance also includes instances when no verbal or physical response is made by the child, but the child allows a peer to have, take, touch, manipulate, trade, or cooperatively use a material, or join in an activity when the request was stated as a demand.

Examples: Offers - yes, I'll use that car; Thank you for the block; the child takes the animal when it is handed to him; the child sits down at the table when invited to join in the restaurant game; the child walks toward the activity when invited to play; allows the other child to push them on a toy; gets on the slide, wagon, or barrel when it is offered.

Requests - Here is a block; you can play with this (handing an animal); peer says "Can I play with that" and the child gestures to the peer to sit down beside him to use the tinker toys; Child hands a car after peer had said "Give me that car" (a demand). Child allows peer to take doll after peer says "I need that baby". Exclude instances when there is no verbal or physical reaction to a non-demanding request such as "May I please play

with you", "Can I have the house", or "I want to ride in the barrel".

Refusals of offers or requests to share includes all instances of noncompliance to a peer's request or offer to have, take, touch, manipulate, trade, or cooperatively use a material, or join in a particular activity. Noncompliance includes all instances where a child's behavior does not allow another peer to share physically after being offered a material, or being asked to use a material (such as the child saying "no" or continuing to play with the toy alone). It includes instances when no verbal or physical response is made by the child to an Offer or a Request that was not stated as a demand. Refusal does not include a child's verbal opposition that is not made in direct response to a peer's Offer or Request; these are labeled Opposing Play. Failing to share physically after verbally agreeing to do so is scored as a refusal.

Examples: Offers - No, I don't want to play with blocks; No; the child does not take the car when it is handed to her; child walks away from a child when asked to join in play with the kitchen; child continues to sit or stand in the same position; verbally responds "I'm just going to watch"; child continues to play with current activity.

Requests - I don't want to give you this car; You can't play with these blocks; No; Don't touch those pans; Get out of here; No, I'll do it myself; child pulls all the blocks into a pile with their arms around them; child continues to play with toy by self when asked to share it; child sits or stands in the same position; says "you can have it later"; "it's not your turn now"; "sure

you can have it", then continues to play with it by self or walks away with it.

Taking Without Asking

Any occasion when a child takes a toy or material that another peer is (1) currently holding, (2) physically manipulating, (3) is a part of or is necessary to complete a project the child is currently working on, or (4) the teacher has previously stated that the toy or material belongs to the peer, without first requesting use of the toy or being offered the toy by the peer.

It includes attempts that are unsuccessful if the child physically touches the toy or material and begins to move it towards him/herself.

Examples: taking a block away from a child that the child was holding; taking a zoo animal the child is currently playing with; taking toys off a tinker toy project that another child is completing; taking the menu from a child's hand; grabs a bin a child is carrying; pulls the barrel out of the child's hands; climbs onto a horse another child is sitting on and knocks the child off; pulls the scooter board out from under another child; grabbing a shovel and pulling it toward him/herself but unable to take it as the other child resists.

Exclusions: attempting to take tinker toys out of the bin; picking up a pan from the table; taking a plastic block from a pile on the floor; touching a stack of blocks another child is making; pushes another child on the scooter board to give them a ride and the child falls off.

Opposing Play

Any occasion when a child indicates verbally that he/she does not want to play with the other children or have the other children join in the activity he/she is presently involved in. Opposing Play includes instances of verbal opposition that are not stated in direct response to an Offer or Request for Sharing. Opposing Play is a category of undesirable behaviors that interfere with sharing or cooperative play. It doesn't include opposing statements made in response to a Take, as this is not an interference with Sharing, and is an acceptable response.

Examples: Jody is building with blocks, a peer puts a block on his building, Jody says, "No, I want to build it myself"; No, I'm playing here; No, I'm going to tell the teacher on you; No; This is mine (when context indicates child is trying to keep materials from peer); A peer requests a toy, child says, "No, this is mine", (a refusal), then a few seconds later says to the same peer "you can't play here."; I don't want you; Get away from my tracks; Don't push me in this barrel; Also score opposing statements made to the group in general such as, You can't play here; You can't have it; Nobody can play here; and This is mine (when context indicates child is trying to keep it away from all peers).

Exclusions: refusal responses to an Offer or a Request; This is mine or I'm playing with this (said as statements of fact in

a conversational tone); threats of aggression; obscene language; Don't touch that (in reference to nonplay items such as the tape recorder); and corrections or instructions on how to play with the toys.

Aggression

A motor attack on another person or their materials that either makes physical contact or comes within one foot of the other person or his/her materials. "Attack" is used to denote some force, as opposed to merely touching, tapping, or accidentally making contact with another person or their materials. In addition, aggression includes throwing an object or spitting directly toward a person, even though the object or saliva may land further than one foot away from the person. It also includes putting mouth in spitting position and then merely blowing while producing a spitting sound (no saliva) as long as the aggressor is within one foot of the person's body.

Aggression involving materials includes an attack on: (1) toys or other materials presently being held or manipulated by another person, or (2) objects upon which another person is sitting or standing.

Examples: toward person - hitting; kicking; pushing; biting; pinching; poking; choking; scratching; grabbing body parts; pulling hair; pouring sand on head; running and leaping at another child, landing within one foot of them, not as part of a game or play routine.

toward materials - throwing; tearing; bending; breaking; banging on; destroying materials being used by the teacher or child; knocking down a child's building or block tower.

TEACHER BEHAVIORS

Positive Attention for Sharing:

Any verbal attention by the teacher(s) to the child that indicates approval of sharing, offering, requesting, trading, exchanging, passing materials or toys, or of cooperative interaction. This attention includes simply stating that the child is or was engaging in sharing behavior, whether a positive comment (e.g., good, nice, I like) occurs with the statement or not. The positive attention must include the child's name or be stated in such a manner that the recipient of the positive attention is clear. Positive attention for sharing does not include comments about products of the child's behavior, or material being used by the child.

Examples: I like the way Tommy is sharing with Lisa; Good, Paul, you gave the toy to Bobby when he asked for it (patting Chris on the shoulder); That was nice of Joey to ask Jimmy if he wanted the car; Tommy and Lisa traded blocks; Thank you for handing the pegs to Paul, Lisa; You are sharing very nicely Jimmy; Chris and Bobby are playing with the toys together; Nice asking Chris (in reference to Chris' request to share).

Exclusions: You are all playing together very nicely; What nice sharing (without touching or looking at a specific child); You need to give Chris the car when he asks Tommy; Let's all play nicely together; Is everyone sharing; That was nice asking (without touching or looking at a specific child); That is a nice building, Chris; Isn't that a neat car (not something child made).

Prompts to Share:

Any verbal attention by the teacher(s) to the child that is either an instruction, invitation, or request for him/her to share, offer, request, trade, exchange, pass materials or toys, or interact cooperatively. The prompt must include the child's name or be stated in such a manner that the recipient of the prompt is clear. Comments made in response to Agression, Opposing Play, or Taking are excluded. Prompts to share do not include comments about performing an action on a material being used by the child.

Examples: Chris you need to share the blocks with Lisa; Paul if you want the car you need to ask for it; Jimmy say, "May I please have a block"; Lisa ask Paul if he'd like to play with you with the flannel board; Hand him some cars Bobby; You two, over there, Bobby, and Tommy, can play with the pegboard together; Bobby you need to give Lisa the puzzle because she asked for it and you are finished with it.

Exclusions: Everyone needs to share; Let's all play nicely together; Is everyone sharing; That was nice asking Jimmy; Tommy is a good boy; Can you put that block on top of this one; Put the puzzle together Paul; Thank you for giving Chris that book; You do not take things from Joey that he is playing with; Lisa, Chris can play here if he wants to.

Other Positive Attention:

Any verbal attention by the teacher(s) to the child that indicates approval of the child's behavior or the product of the child's behavior and is not Positive Attention for Sharing. This attention includes simply stating that the child is or was engaging in appropriate behavior whether a positive comment (e.g., good, nice, I like) occurs with the statement or not. This positive attention must include the child's name, or be stated in such a manner that the recipient of the attention is clear. Positive attention does not include positive comments about the materials being used by the child.

Examples: That is a neat building, Chris (he made); You got the puzzle together all by yourself Paul; What an interesting design Jimmy; You finished that card Joey; Thank you for walking across the room Bobby; That was nice of you to say hello to Lisa, Paul.

Exclusions: I like the way Tommy is sharing with Chris; Good, you gave the toy to Bobby when he asked for it; Isn't that a neat car (in reference to a car not made by a child); Nice asking Joey; You need to ask Chris for the block, Lisa.

Other Teacher Attention:

Any verbal attention by the teacher(s) to the child that is not Positive Attention for Sharing, Prompt to Share, other Positive Attention, or prompts to go to Contingent Observation or the Quiet Area. The attention must include the child's name or be stated in such a manner that the recipient of the attention is clear. This attention includes a teacher's comments about Aggression, Taking or Opposing Play. The "time to clean up" signal at the end of the free play period is not scored, or the "time to line up" signal at the end of recess.

Examples: Play with those toys Paul (pointing to cars on the floor); You can either play with the blocks or pegboard, Lisa; You need to put the truck back on the shelf; Can you put the pegs in the pegboard, Joey; Put the puzzle together, Paul; Walk across the room Chris, you do not run; Would you like to play with these blocks, Tommy; Isn't it a nice day, Chris; Are you having fun, Lisa; You should not take that from Bobby; Tommy can play here, Lisa.

Exclusions: Chris you need to share the blocks with Lisa; Paul if you want a car you need to ask for it; Tommy and Bobby can play with the pegboard together; That is a neat building, Tommy; You got the puzzle all finished, Lisa; Thank you for walking Bobby; You'll have to sit and watch the other children play nicely; You can come back to play now.

Contingent Observation and Quiet Area:

When the teacher takes the child away from the activity area following disruptive behavior, and tells the child to sit and watch the other children or takes the child to the quiet area. Continue scoring Contingent Observation and Quiet Area until the child has returned to the free play and/or activities.

Examples: taking to contingent observation -- No, we don't hit, sit and watch the other children keep their hands to themselves; Bobby, you do not take toys away from other children, sit and watch how the other children ask for the toys they want.

taking to the quiet area -- No, you don't hit other people, you'll have to go to the quiet area; You need to stay where I sit you, you'll have to go to the quiet area.

bringing back to the activity -- You can go back and play now Lisa; holding the child's hand while walking back to the activity.

taking back to contingent observation -- now sit here and watch how the other children do what the teacher tells them to do; leading the child from the quiet area back to sit and watch.

Target-Peer Verbal Interactions

Positive Attention for Sharing

Any verbalization between the target and the peer that indicates approval of sharing, offering, requesting, trading, exchanging, passing materials or toys, or of cooperative interaction. This verbalization includes stating that the child is or was engaging in sharing behaviors, whether a positive comment (good, nice, I like...) occurs with the statement or not.

The main interest is in the interaction toward a peer. But if general statements are made by the target child or the target child makes statements to a teacher, they will be included, as long as the other children are hearing them.

Examples: Thank you for giving me the toy; Thanks for the ride; I'm glad we're playing together; Look, we're sharing, We're playing together; You gave me the elephant; Tommy helped me pick up the ride on the scooter board; Everybody is playing together; We're taking turns; You said please when you asked; Billy let Jody have the car;

Prompts to Share

Any verbalizations between the target child and a peer that are either an instruction, invitation, or request for him/her to share, offer, request, trade, exchange, pass materials or toys, or interact cooperatively with another child. The prompt must include the child's or children's names or be stated in such a manner that it is clear that the receipent of the prompt is another child, and that child is being prompted to share with a third child and not the target child. Prompts to share will be counted only if it is clear there is no gain or reward for the prompting child. The emphasis is on one child prompting another to share with someone else.

Examples: You should share the toy with Billy; Give Tommy a turn; Ask him if you want it; Go see if Paul will play with you; Jody, give the ball to Chris; Tommy, let Jody have a ride.

Exclusions: You should share with me now; If you ask me for it nice, I'll give it to you. Let me play with you. We're supposed to share.

Other Positive Attention

Any verbalization from the target child to a peer that indicates approval of the child's behavior or a product of the child's behavior and is not Positive Attention for Sharing. This attention includes simply stating that the other child was or is engaging in appropriate behavior, whether a positive comment (such as good, nice, I like..) occurs with the statement or not. This Positive Attention must include the child's name or be stated in such a manner that it is clear that it is directed toward another child in the acceptable area. Positive Attention does not include positive comments about the material being used by the other child.

Examples: That's a nice tower you made; you really went down the slide nice; you look nice today.

Other Peer Attention

Any verbalization from the target child to a peer that is not Positive Attention for Sharing, Prompts to Share, Other Positive Attention, Opposing Play, an Offer or Request, or an Acceptance or Refusal to an Offer or Request.

The verbalization must be directed to someone in the dramatic play/building area during Free Play. The verbalization must include the child's name or be stated in such a manner that it is clear that it is directed toward another child, and one in an acceptable area. Animal noises, telephone noises, and other vocalizations that aren't actual words are not scored.

Examples: The broom is broken; My little sister hurt her head; This sand is cold; I'm going to get some more bowls; Look how fast I'm going; My horse is kissing yours; Those buildings are supposed to stand up this way; Push me over there, not on the tape; That sand belongs in the red bucket; You aren't supposed to have guns in the classroom.

COOPERATIVE PLAY

Play includes manipulating a play material, holding and looking at a toy, or being positioned in or on a piece of large play equipment, or getting additional materials related to an ongoing activity.

In cooperative play, the children are engaged in interdependent or joint play with at least two children within a six foot area. The target and a peer are using a common play object, a similar play object with an interdependent activity, or are participants in the same gave involving predictable patterns of behavior between the participants. Cooperative is scored for an interval when any aspect of cooperative play occurs for any part of that interval. This includes the manipulating, being positioned on or getting materials for any cooperative play activity.

Examples: Common object - pouring sand into the same bucket or the sand wheel; making a block tower, each alternating putting on blocks; pulling or pushing each other in the barrel or the scooter board; rocking on the teeter-totter; jumping rope with two of the children holding while one jumps; sliding down the slide, one after another; laying inside the barrel and rolling together.

Similar object - Talking on the telephone to each other; playing follow the leader on the scooter boards, taking pictures of each other with the tinkertoy cameras, building towers together to knock them down; pushing cars around on the same road in an imitative fashion.

Without Objects - Playing follow the leader crawling in a pattern on the floor; playing a game of who can make

mad faces and imitating each others actions; both taking on a role such as pretending they are puppies.

Exclusions: Each riding a different horse or riding on a scooter board in a random pattern around the room; several children in the sand box, but each has their own bucket and shovel and is playing separately; each rolling around in a separate barrel; three children rolling tires down the slide (cooperative play) and then one picks up their tire and starts twirling around with it instead of returning to the slide (this would have been scored as cooperative if he had picked up the tire and was in the process of returning to the slide at any time during the interval); two children playing in the sand box, pouring sand into the sand wheel (cooperative play), then for a complete interval they sit and look at other children playing or turn away from the sand wheel. (cooperative play would be resumed at the point they began putting the sand into the wheel, and continues while they are refilling their buckets to pour into the wheel. It would also include going to get another shovel to use to put sand in the wheel.)

RECORDING RULES

1. The order of observation is initially determined in Free Play at the start of the observation period by noting the children's initials on the line above the grid. When a child is late in coming into the area, that child is to be observed the next full interval. The child that is observed each minute will be announced by their first initial at the start of the minute when reliability is being taken.

2. During Recess, the order of observation is determined by rotating by one child each day, a set order of names.

3. During Free Play, each child will be observed three complete intervals of one minute each. During Recess, they will be observed at least two intervals and three if there is time, depending on how long it takes them to complete the assignments in the Independent work period that preceeds Recess.

4. In addition to noting the child that is being observed, the number of other children in the area and their initials are also recorded as of the beginning of the interval. Changes in number of children are not noted unless they are of antedotal interest. The activity of the subject will be noted at the beginning of the interval in Recess, and the number of children within a 6-foot area or children that are involved in cooperative play with the subject will be recorded. If no one is within 6-feet of the subject and they are not involved in any cooperative play, they will be scored as Alone, and the interval will be slashed with a single diagonal line.

5. Observation will continue at all times during Recess. If the child leaves the assigned area, the interval will be slashed with two diagonal lines. This is also true during Free Play. The child must be out of the area the entire 10-second interval to be scored out of area.

6. Prompts to return to the area in Free Play and Recess are not scored. Prompts that signal the end of the period are not scored either.

7. If no defined behaviors occur in an interval, a small slash is made through the number of the interval that is located at the top of the grid for each 10-second interval.

8. Each child and teacher behavior can only be scored once per interval. If any one of the behaviors begin in one interval and are continuing in the next interval, record the behavior for both intervals.

9. In addition to scoring the subject's behaviors, record any offers, requests, acceptances, refusal, prompts to share, praise for sharing, taking, opposing play, and aggression by a peer that is directed toward the subject child. Initial the promts to share and the praise for sharing directed towards the peer. Other behaviors can be labelled with the peer's inital if time permits for antedotal information.

10. When an offer or request has been made by a child, the peer's acceptance or refusal can be recorded within the next full 10-second interval following the completion of the offer or request.

11. When an offer or request is made during the last 10-second interval of a child's minute, the observer will continue to observe the subject and the peer involved for an additional 10 seconds to record the response. The first 10-second interval of the child following will be crossed out with an X to denote the observer missed the interval.

12. If a child's behavior does not allow a peer to take a material or join an activity following the peer's offer or request, score as a refusal even if the offer or request was verbally accepted.

13. If Contingent Observation or Quiet area begins or is occuring during an interval for a subject child, record a CO or QA above the grid for the intervals involved. Do not score any behaviors unless they had already occurred before the CO or QA had begun.

14. Cooperative play is scored if it occurs at any time during the 10-second interval that is being recorded. The C for cooperative play will be circled if the cooperative play was initiated by an offer or request that was accepted. Cooperative play cannot be occuring in the interval just proceeding the sharing-initiated cooperative play, and the accepted offer or request must involve materials or activities related to the cooperative play.

15. Ongoing cooperative play, or cooperative play that is begun without an accepted offer or request is scored with a slash through the C.

16. An X is placed on the C if cooperative behavior is terminated by one of the participants by a refusal to an offer or request or one of the defined negative behaviors.

17. Data will not be collected on days where there are three or less children present in class for the day.

18. Teacher behaviors scored from the audiotape will only be recorded if the child's name is stated in conjunction with a verbalization. The teacher behaviors will be recorded on the original data sheet with the child behaviors, following the same 10-second intervals cued by the other audiotape.

APPENDIX B

SOCIOMETRIC PROCEDURES

SOCIOMETRIC PEER-RATING PROCEDURE

Free Play

PASS 1981-82

A. Sociometric Peer-rating

1. Picture of each child attached to a piece of blue poster board and a 3x4 card with three faces, a happy face, a neutral face, and a sad face.

2. Child is asked to find his/her picture.

3. Child is asked to name pictures of other children.

4. Child is shown the card with the faces, and it is explained that the happy face is used to mean you like something a lot, the neutral face is used to mean you don't like or dislike something, it is just okay, and the sad face is used to mean you dislike something a lot. Test faces with familiar foods and objects, until they consistently demonstrate understanding of the faces.

5. The child is then told, "Now I want you to look at this picture (point to one of the child's pictures on the poster board) and and tell me how much you like to play with this person during play time when you first come in in the morning and are on the red or yellow team. You tell me how much you like to play with this person then by pointing to one of the faces that tells how you feel. Remember, the happy face means you like to play with this person alot, the middle face means you don't really like or dislike to play with the person, it is just okay, and the sad face means you dislike playing with this person a lot. Now, point to which face tells how you feel about playing with this person in the morning playtime in the classroom."

6. This procedure is repeated for the Recess period by asking how much they like to play with this person in the indoor playground during Recess. The explanation of the faces can be abbreviated as the child learns how to use the faces.

7. Both questions are then asked for each child in the classroom.

8. Results

Child	Free Play Rating	Recess Rating
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

9. The order of the children's pictures rated will be randomly rotated.

B. Sociometric Nomination

1. Picture of each child attached to piece of blue poster board.

2. Child asked to find his/her picture.

3. Child asked to name pictures of other children.

4. "Now I want you to look at all of the pictures very carefully and point to the picture of the person you most like to play with at school." _____

5. "There are some children at school whom we don't like to play with very much. Look at all the pictures very carefully. Point to the picture of a person you don't like to play with at school."

_____

C. Interview

1. "You said you liked to play with (child's name). Why do you like to play with him/her?" _____

_____

If no response, provide the child with prompts, for example:

"Does (child's name) play nicely with you, or does he/she make you mad when you play?" _____

_____

"How does he/she play nicely (or make you mad)?" _____

_____

"Does (child's name) give you toys, knock your building down, or take what you're playing with?" _____

_____

2. "You said you don't like to play with (child's name). Why don't you like to play with him/her?" _____

_____

If no response, provide the child with prompts, for example:

"Does (child's name) play nicely with you, or does he/she make you mad when you play?" _____

_____

"How does he/she make you mad (or play nicely)?" _____

_____

"Does (child's name) give you toys, knock your building down, or take what you're play with?" _____

_____

3. Ask child about his/her idea of what sharing behavior is: "What is sharing?" _____

_____

"How do you share with the other children in the classroom?"

_____

_____

If child does not respond, or the responses do not relate to sharing, ask the child to show you how to share using tinker toys. Interviewer has few tinker toys and child has the rest in the tinker toy bin. Allow child 2 minutes to give interviewer, or offer some tinker toys._____

4. Ask child "When you are playing with the toys in the classroom and one of the other kids has a toy you want, how do you get the toy?" _____

_____

5. Ask child "Are there some kids who give you toys when you ask for them?" _____ "Who?" _____

_____

Are there some kids who don't give you toys when you ask for them?" _____"Who?" _____

_____

APPENDIX C

TRAINING MATERIALS

SCRIPT FOR TRAINING SHARING
FREEPLAY

Sessions will take place during the first 10 minutes of free play for 4 days for each group of 2 children. On the first day of training, Vivian will discuss what sharing is and model sharing with the target child. On the second day of training, sharing will be modeled with the other child and then the two children will practice sharing with Vivian providing prompts and feedback. The children will practice sharing and receive feedback on the third and fourth days of training. Toys used in the training sessions will include building materials (e.g., wooden blocks, train lego, tinker toys, bristle blocks, and rig-a-jig) and dramatic play (e.g., cars with block road, doll house with furniture and people, farm and animals, fishing poles and bucket of fish, ETA village, and animals with blocks to build a zoo). The training sessions will proceed somewhat as follows:

1 I want to talk with you today about something before we start to play. Making friends is important. One way to make friends is to share with other children. We can share by giving other children things when they ask nicely for them; or if we have just gotten a toy when they ask for it, telling them they can have it in a little while. We can also share by asking for toys that other children have. We share with others by playing nicely together. It is not sharing to hit or push other children, take toys that they are playing with, or tell them that they cannot play. The toys in the classroom are for everyone. Remember, one way to make friends is to share. We share by giving other children toys, asking for toys that we want, and by giving other children toys when they ask for them. Watch me share. (Target child), will you help me show (Peer) how we ask someone to share and then how we actually share together? (Vivian places all of toys in front of her and begins to play.) (Target Child), would you like to play with this with me? (Vivian waits for the child to say yes and for child to sit next ot her and play; any sharing behavior that occurs is immediately praise; if no sharing behaviors occur or if incorrect, the child is prompted how to share appropriately and guided if necessary. Sharing behaviors include: offers to share, requests to share, and acceptances of offers or requests. Vivian and the target child play together for the remainder of the 10-minute period. Frequest offers, requests, and acceptances are modeled, prompted, and praised.)

2 (The next day, Vivian will quickly review what sharing behavior is and how to share. Then she models sharing with the peer following the same procedure as during Session 1. Following this the two children will be asked to play together and share.) Now that each of you know how to ask someone else if they want a toy, how to ask them for toys, and then to play together, we are going to practice. (The children are given a toy.) I want you to play with this toy together and share. (Vivian praises and prompts offers, requests, and acceptances; any refusals are followed with a prompt of what would be a better thing to say. Taking, aggression, and opposing play will be stopped and the children told that that is not how to share and then prompted in appropriate sharing.)

3 & 4 (The third and fourth day, the two children will be asked to play together for the 10-minute period. Offers, requests, and acceptance will be praised and prompted if necessary. Negative behaviors will be handled as during the second session when the children played together.)

(At the end of the fourth training session, before sending the children to play with the group, Vivian will remind the children about sharing.) Now that you've both had a chance to share and play together, remember it is very important to share. Sharing is asking another person for something, giving someone something, and using the same things together. Three people, four people, even ten people can share. Okay, go ahead and play with the toys.

RECESS

Children in the programmed generalization phase of Recess will be taken to the indoor playground area five minutes prior to the actual Recess period by the head teacher. They will go to the Recess area assigned for that day to receive training. Training will include a discussion of the toys and activities in the area, and how offers and requests can be made to other children using these materials. The children will then be asked to show examples of how they would share with each of the materials in the area. Offers and requests that lead to ongoing cooperative play will be emphasized.

After the initial instructions on how to adapt offers and requests to the materials in the Recess area, they will praised for all appropriate examples they performed. Examples will be prompted for children who do not spontaneously produce them. Examples of offers and requests to be trained are: "Will you play on the slide with me?", "Do you want a ride in the barrel?", "Here is a ball, do you want to play ball with me?", and "Here is a shovel, let's put sand in the bucket."

Before the children who are not being trained come to the Recess area, the children will be introduced to the "Sharer of the Day" badges. It will be explained that the badges are for the children who do a very good job of sharing with the other children during Recess. They will be told they need to ask and give alot, and let other children have toys when they ask. They will also be informed that they can get a star to wear if they help the other children share.

During Recess the teacher will observe the children, and note any good examples of sharing, examples of children prompting or praising other children to share, and also, any examples of refusals to accept offers or requests.

There will be no in-session prompts or praise provided by the teachers or aides.

After Recess is over, the children will have snack. All children in the programmed generalization phase will sit at a separate table with the head teacher. The children will be encouraged to give examples of offers and requests they used with the other children during Recess, and also any examples of helping other children to share. The teacher will write down the children's examples and praise examples of offers and requests leading to cooperative play. The "Sharer of the Day" badges will be awarded to the children who have given good examples of sharing and the awarding is based on the teacher's judgement with input solicited from the children. Any refusals will be noted, and the child involved will not be eligible for a badge. Feedback will be given to each child on the sharing behaviors the teacher observed.

Pre-session discussions will take place for two days in each of the three Recess areas, and should average five minutes in length. After the completion of these sessions, only the group feedback procedure will be continued.