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Using Peer Mediators to Teach Social Skills to Children with Behavior Disorders as a Means of Facilitating Regular Education Placement

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by

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Abstract

The purpose of this study was to examine the effectiveness of using peer mediators to facilitate social skills instructions for behaviorally disordered (BD) children. One target student who had previously been enrolled in a BD classroom was identified for having few appropriate social interactions and interfering inappropriate social behaviors. Other participants were four students from the target student's regular education classroom who served as peer mediators. During intervention, the target student received social skills instruction and the "practiced" the skills with peer mediators across school settings. Data included pre and post ratings by teachers, parents, and peers, as well as, direct observation data which determined the retention and generalization of learned skills. A single-case multiple baseline design across skills and settings was used to interpret the results.

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Conduct and Behavior Disorders

Children with conduct disorders are of special interest to psychologists because of the variety of implications for future maladjustment. These children show a "persistent pattern of conduct in which the basic rights of others and major age-appropriate societal norms are violated. The behavior pattern typically is present in the home, at school, with peers, and in the community" (DSM-III-R, 1987). Recently, this population has received increased attention from clinical researchers because of the apparent association of behavior problems with other childhood problems and personal maladjustment problems later in life. Coie, Lochman, Terry, and Hyman (1992) found both childhood aggression and peer rejection to be significant predictors of adolescent maladjustment. Childhood behavior disorders have also been linked to later delinquent and criminal behavior (Reinarman & Fagan, 1988; Stattin & Magnusson, 1989; Loeber & Dishion, 1983) as well as the development of other antisocial behaviors later in life (Kazdin, 1987). Clinical researchers have also found a correlation between early disruptive behavior and poor school achievement (Tremblay et al., 1992).

The association between conduct disorders and peer relations indicates its relevance to social psychology.

Kupersmidt and Patterson (1991) found that poor peer relations could be correlated with a variety of behavior problems occurring later in life (e.g., depression, unpopularity, delinquency, aggression, etc.). Parker and Asher (1987) also suggested that low-accepted children might be at risk for "later life difficulties." Dodge, Coie, Pettit, and Price (1990) found that rejected boys displayed significantly higher rates of both reactive and instrumental aggression than average boys.

Conduct disorders play a significant role in the area of school and educational psychology. A number of investigations found an association between conduct problems and poor school achievement. Cairns, Cairns, and Neckerman (1989) found high levels of aggression and low levels of academic performance to be associated with early school dropout. Taylor (1989) found "that early patterns of disruptive and aggressive behavior are likely to persist over time and to contribute to further peer rejection in subsequent years." From a more practical perspective, the school environment plays a vital role in identifying children with conduct problems. In educational settings, children with conduct disorder are classified as having a "behavior disorder" and may be eligible for a variety of special education services. Depending on the severity of the disorder, the child may be placed in a self-contained special education class for at least part of the school day.

Behavior Disorders and Social Skills

A clear relationship has been demonstrated between social skills and behavior disorders in children. According to Elliot and Gresham (1993, p. 287), "Social skills may be defined as socially acceptable learned behaviors that enable a person to interact with others in ways that elicit positive responses and assist in avoiding negative responses." Elliot and Gresham (1990) further identified five major classes of social skills that facilitate interactions: cooperation, assertion, responsibility, empathy, and self-control. The recognition of the importance of social skills has led to the development of various social skills training interventions in an attempt to alleviate the behavior disorder(s) within the child's social context. Three primary theoretical approaches have been employed in social skills interventions: operant conditioning, social learning theory (e.g., modeling), and cognitive-behavioral procedures (Elliot & Gresham, 1993; Bierman & Montminy, 1993; Elliot, Sheridan, & Gresham, 1989). Operant conditioning procedures focus on observable behaviors and their antecedent and consequent events (Elliot & Gresham, 1993). For example, specific observable social skills may be increased by providing contingent reinforcements and inappropriate behaviors may decreased with contingent punishment. In addition the antecedents of the child's social behavior are controlled by manipulating the environment or social context in which the behavior occurs in order to provide an atmosphere which encourages

the most positive interactions. However, an important consideration is that the learned behavior must be generalized across settings so that appropriate interactions will occur not only in specified areas where the behavior was learned, but that the child will also employ the new skills in any appropriate social context.

Social learning theory emphasizes the importance of observational learning, or modeling, as well as, reinforcement. The consequences of modeled behavior are believed to influence the behavior of those who observe it, a process known as vicarious punishment or vicarious reinforcement, depending on the effect of the consequence. Cognitive-behavioral approaches emphasize "a person's ability to solve problems and to self-regulate behavior" (Elliot & Gresham, 1993, p. 304). The most frequently employed methods are coaching (e.g., direct verbal instruction) and teaching social problem-solving (e.g., identifying problems, determining possible reactions, predicting outcomes of each reaction, and determining the most adaptive alternative).

Social skills provide much flexibility in interventions for treating the behaviorally disordered child. The interventions may take place in a variety of settings (e.g., home or classrooms), with either individuals or groups of students, and generally nonaversive methods are used (Elliot & Gresham, 1993). While there are many different means of teaching social skills concepts, all

involve modeling correct behavior, eliciting imitation, providing corrective feedback, practicing the new skill, and either extrinsic or, ideally, natural reinforcement. Some social skills training procedures which have resulted from these basic teaching requirements are both verbal and modeled instruction, feedback and/or reinforcement, and a variety of processes which reduce interfering problem behaviors.

A review of the application of the primary theoretical perspectives reveals that each has been successfully employed to increase children's social skills. For example, operant intervention procedures were effectively used to increase social interaction rates of socially withdrawn children by training a peer confederate to initiate positive interactions, thus controlling antecedent conditions (Strain, 1977; Strain, Shores, & Timm, 1977; Strain & Timm, 1974). Similar interventions have combined operant conditioning procedures and social learning. Here, children are thought to learn from observing the consequences of the modeled behavior of the peer. Thus, when the peer mediator is reinforced for a positive social interaction, then the observing student may be more likely to engage in that behavior as well. Lochman, Dunn, and Klimes-Dougan (1993) employed a cognitive-behavioral perspective in developing an anger coping program for aggressive children, which involved goal setting and problem solving. It is important to note that while these interventions are based on different

theoretical perspectives, some of the most effective outcomes result from a combination of all three.

Social skills interventions have also been successfully used across a variety of populations and problem areas. Lochman and his colleagues (1993) noted that cognitive behavioral treatment was successfully used to treat antisocial, socially rejected, aggressive and rejected children, and substance abuse populations. Kazdin (1987) noted that social skills interventions could effectively be used to treat antisocial behavior in children. Adolescents have also been shown to benefit from social skills interventions (Christopher, Nangle, & Hansen, 1993; Bierman & Montminy, 1993).

Social skills interventions have perhaps been most extensively investigated in the area of developmental disabilities. As an especially effective approach, social skills have successfully been taught to persons with developmental disabilities by means of peer mediation. For example, Oke and Schreibman (1990) describe a procedure in which a nonhandicapped peer was employed in the training of social initiations to an autistic child. Even handicapped peers have been successfully employed in training the acquisition of social interaction skills to autistic children (Shafer, Egel, & Neef, 1984; Charlop, Schreibman, & Tryon, 1983). Peer trainers have been employed in teaching a variety of skills, such as play skills (Coe, Matson, Craigie, & Gossen, 1991; Carr & Darcy, 1990) and community

skills (Blew, Schwartz, & Luce, 1985). Many peer mediation interventions have also been employed with the ultimate goal of facilitating the mainstreaming of children with developmental disorders into a normal classroom (Egel, Richman, & Koegel, 1981; Sasso, Mitchell, & Struthers, 1986).

Social Skills Interventions as a Method for Facilitating Regular Educational Placement

As a means of dealing with the disruptive problems of children with conduct disorders, many schools have adopted Behavior Disorders (BD) classrooms. Historically, the BD classroom emerged as a means of segregating children with severe behavior problems from their peers so that they may receive specialized instruction in accordance with their needs. However, as with all special education classes, eventually the issue of mainstreaming or re-integration into a regular education classroom emerges. For children with behavior disorders, this transition can be especially challenging since they often lack the skills that are conducive to positive peer interactions (e.g., the ability to establish of friendships). Thus, it is hypothesized that social skills training could alleviate some of the problems associated with the transition from special to regular education placement for children with behavior disorders. This approach has been previously employed in the area of developmental disabilities.

Haring and Breen (1992) developed a peer-mediated

social network intervention to facilitate the integration of developmentally disabled children into regular education classrooms. This intervention consisted of two groups of nondisabled peers who initiated interactions with 2 disabled students (1 with autism and 1 who was mildly mentally retarded) during transition times and lunch at school. The nondisabled peers assessed the social interactions of the disabled students and discussed strategies for improving them. The nondisabled students rated each interaction in terms of quality and quantity. A multiple baseline design was used to analyze the frequency of interactions, number of opportunities for interaction, and the appropriateness of interactions. The outcome of the study indicate that both quality and quantity of interactions was improved and that the network promoted the development of friendships.

The purpose of this study was to extend the findings of the Haring and Breen (1992) study to conduct disordered children in elementary schools. In addition, the effectiveness of using peer mediators to teach social skills to behaviorally disordered children as a means of providing a smoother transition from the BD classroom to a regular education classroom were examined. The issue of generalization of social skills training was also addressed. By conducting the intervention across a variety of settings, it was expected that the learned skills would prove to be used in more settings and with persons other than those who participated in the study. A subsequent long-term goal was the prevention of future maladjustment.

Method

Participants

Target student. Neil was an eight-year-old male who was enrolled in the second grade. He was previously enrolled in a Behavior Disordered (BD) classroom; however, he was being mainstreamed in a regular education classroom during the course of the study. He was identified by teachers and peers as having few appropriate social interactions (as described below under "assessment"). In addition, previous school psychological evaluations revealed that Neil was of average intellectual functioning, but had a history of poor peer relations and significant academic deficits. Neil had a previous diagnosis of Developmental Dyslexia with Attention Deficit Hyperactivity Disorder. All inappropriate behaviors were specifically defined for this student, based on the result of assessments and direct observation baseline data, as described below.

Peer mediators. Four students from the regular education classroom were selected to serve as peer mediators. Selection for inclusion in the study was based on the following criteria: (a) enrollment in the same regular education class as the target student, (b) nomination by the classroom teacher, (c) no previous diagnosis of a behavior disorder, and (d) some prior acquaintanceship with the target student. Upon selection of the target student, a teacher interview regarding the peer mediators was conducted to confirm average to above average

performance in behavior, social skills, and academic competence for each of the selected peer mediators.

All participants were informed of their ability to withdraw from the study at any time. They were also informed that there would always be adult supervision and intervention when necessary. In addition, informed consents were obtained from each of the participant's parents.

Social skills assessment. Social skills assessment consisted of the Social Skills Rating System, the Achenbach Child Behavior Checklist, and peer sociometric measures. The Social Skills Rating System (SSRS; Gresham & Elliot, 1990), is a questionnaire which assesses social behaviors that may influence relationships between teachers and students, peer acceptance, and academic performance. The SSRS includes ratings of both the perceived frequency and importance of the student's social behavior. The SSRS samples three aspects of the child's repertoire of behavior: social skills (e.g., cooperation, assertion, responsibility, empathy, and self-control); problem behaviors (externalizing problems, internalizing problems, and hyperactivity); and academic competence (e.g., reading and mathematics performance, motivation, parental support, and general cognitive functioning).

The SSRS was completed by the teacher and parent of the target student. One distinguishing feature of the SSRS is its utility in identifying target behaviors for intervention purposes.

Another assessment measure that was used was the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) in order to further evaluate social competency and to screen for any other specific behavioral problems. The CBCL is a rating scale that is used to assess a variety of common childhood behavior problems and social competencies. The CBCL provides an assessment of two broad domains of internalizing and externalizing disorders, as well as, eight specific factors which include: withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquency and aggression.

Peers also assessed the target student's behavior by completing a standardized peer sociometric measure. This measure was designed to assess peers' perceptions of another child's behavior and his social status (Foster, Inderbitzen, & Nangle, 1993). Students are asked to provide written names of students in their classroom with whom they most and least prefer to play and work. This helps to assess peer relations in a given classroom, as students with poor peer relations are identified by their peers.

In addition, direct observation data was collected by the investigators in order to provide additional confirmation of specific target skills.

Upon completion of the intervention, the SSRS and the CBCL were completed again by the teacher and parent. In addition, peers also completed sociometric measures in order to determine if there had been any change in attitude toward

the target student and if there were any lasting treatment effects.

Settings and Materials

This study was conducted at a local elementary school that has self-contained Behavior Disordered classrooms in addition to regular education classrooms. All treatment sessions were held on the school premises. Various settings which encourage social interactions were employed, including the regular education classroom, the playground, and the self-contained classroom.

Materials used in the study consisted of various card games and playground equipment. On occasion, common classroom rewards were given contingent upon participation and attainment of individual goals (e.g., stickers, pencils, etc.).

Measurement and Response Definitions

Independent variables. The independent variables were the primary components of the intervention: (a) the use of peers to facilitate social interactions and opportunities for interactions both through structured activities and by instructing them to initiate interactions with Neil at other times during the school day; and (b) direct social skills instruction.

Dependent variables. Primary dependent variables consisted of the measurement of (a) appropriate and (b) inappropriate social behavior for each target behavior and collateral behaviors (see "target behaviors" below). All of

these measures were based on direct observation. Secondary dependent variables consisted of pre and post measures of the SSRS, CBCL, and peer sociometric measures.

Target behaviors. Three primary social skills were identified as problem areas: appropriate tone of voice, accepting ideas (cooperating), and ignoring teasing or negative comments. "Appropriate tone of voice" was defined as all verbal responses which were not complaint-oriented in nature and which were spoken at a volume that was appropriate to the environment (e.g., not whining, loud, or high-pitched). "Accepting ideas" was defined as compliance with a verbal request or prompt from a teacher or peer. "Ignoring teasing" was defined as not responding to peer disruptive behavior.

Several collateral behaviors were observed because of their frequent association with social skills deficits. "Other inappropriate behaviors" were defined as the violation of classroom rules (e.g., throwing objects, getting out of seat without permission, etc.). Peer initiations were also observed and were defined as initiations of interactions with the target student by any other student. Peer initiations were classified as appropriate or inappropriate in nature. Similarly, target student initiations were recorded. These were defined as the initiation of interactions with any peer by Neil, and were also classified as appropriate or inappropriate.

Observer training. Three observational staff were

instructed as to how to score all target behaviors. Observer training included three independent activities: (a) discussion and memorization of code definitions and scoring procedures, (b) practice observations with video recordings of students in an actual classroom in order to compare and discuss each other's scoring procedures and to establish prebaseline reliability, and (c) simultaneous and independent observations in the actual school setting in order to establish interobserver agreement. This final stage of training occurred until agreement on all behaviors averaged 75% or better for three consecutive days.

Interobserver agreement. Two independent observers simultaneously but independently collected data for at least 25% of all sessions in each setting (e.g., structured play, classroom, and recess). Agreement was calculated for each target behavior by dividing interval by interval agreements by agreements plus disagreements and multiplying by 100% (Kazdin, 1982). Overall interobserver agreement was 88.07%.

Data collection. Trained observers collected observational data for all periods in which social interaction was designated to occur. Specifically, these periods occurred at a structured play setting, in the classroom, and at recess (free play). All observations lasted for ten minutes. Direct observation data was collected across all phases of the study, including baseline, intervention, and follow-up probes.

Design

A single-case multiple baseline design across behaviors and settings was used to evaluate the results. Pre and post scores on the SSRS and the CBCL were also evaluated.

Procedure

Instructions for peer mediators. Prior to the first structured activity for the target students and peer mediators, the students selected to serve as peer mediators met to discuss their role in the investigation and were given general instructions. They were instructed as to the purpose of the project and given general instructions as to the structure of each session and their respective responsibilities. More specifically, they were informed that they would be helping each other to make new friends and to behave appropriately by participating in structured group activities.

Group social activity. The group social activity consisted of an explanation of that day's activity and a review of the day's goals (5 min.), actual play time (10 min.), evaluation of individual performance with therapist (10 min.). There were approximately three sessions each week.

Feedback. An evaluation of the performance of target student was conducted upon the conclusion of each session. Both appropriate and inappropriate interactions were inquired about and commented on by the investigator (e.g., "How do you think you did today with using an appropriate tone of voice?...Do you think that you need to try a little

harder next time?"). Peer mediators were also asked to comment on both their performance and the performance of the target student (e.g., "How do you all think that we did today with practicing to use an appropriate tone of voice?...Let's remember to help each other to use nice voices by reminding each other whenever we realize that we aren't"). Common classroom rewards were given periodically throughout the intervention in order to encourage and enhance participation. These rewards (small stickers) were given once or twice each week for the sole purpose of reinforcing participation in the project and were not contingent upon actual performance.

Intervention Phases

Baseline. Baseline data was collected prior to any social skills instruction or introduction of the current study to the peers. Direct observation data was collected on all target behaviors as described above. The target student was observed for a period of 10 minutes in all three social settings: structured play, recess, and classroom. An observer remained at a distance of three to six meters from the student and attempted to remain unobtrusive so as not to interfere with the child's normal interactions with other students. During baseline no interaction occurred between the investigator and any students. This phase was conducted both to confirm target skill selection and to determine the frequency of each target behavior prior intervention. After intervention, this phase was

implemented to test the generalization and retention of treatment effects.

Direct social skills instruction. After baseline social skills training was conducted by a therapist with the target student. The first target behavior was using an appropriate tone of voice. Specifically, instruction involved an introduction to the skill which included a definition of tone of voice (e.g., "This refers to how we say things, not necessarily what we say."), a discussion of the importance of using an appropriate tone of voice, and modeling both appropriate and inappropriate examples tone of voice. Next, Neil was asked to repeat the definition, explain his ideas about its importance, and to demonstrate both positive and negative examples of tone of voice. The instruction period was then followed by "practicing" the newly-learned skill in a structured group activity.

Treatment 1. During this phase, both peer and therapist prompts were to be provided to Neil to remember to use an appropriate tone of voice. Both peers and Neil were instructed to "help" each other to remember by reminding each other whenever they heard something spoken in an inappropriate tone of voice, (e.g., "That doesn't sound like an appropriate tone of voice."). Treatment 1 also included the loss of a turn in the game contingent upon the use of an inappropriate tone of voice. Thus, a prompt would be followed by, "I think that you need to lose your turn this time." However, the turn could be earned back by

asking with an appropriate tone of voice, "May I please have my turn back?"

Treatment 2. During Treatment 1, several peers expressed a reluctance to prompt each other. As a result almost all prompts were from the therapist. In order to preserve the peer component of the intervention, Treatment 2 involved a peer confederate who delivered a prompt to the target student or whomever wasn't using an appropriate tone of voice. In addition the behavior contingency was dropped (loss of the turn in the game). One peer was selected to serve as the confederate throughout this treatment phase based on his enthusiasm about the project and his ability to correctly follow instructions. The peer confederate was instructed to remind the target student to use an appropriate tone of voice. (e.g., "Neil, would you please remember to use a nice tone of voice?").

Treatment 3. As inappropriate behavior had escalated in previous treatment phases, a more comprehensive treatment package was developed. Treatment 3 consisted of four components: (a) peer prompts - all group members were encouraged to remind each other to use an appropriate tone of voice. This was similar to Treatment 1, except that there was no loss of a turn; (b) shaping - each day the group as given a pre-determined number of happy faces based on the performance in the previous session. As the behavior improved, they were allotted fewer happy faces at the beginning of each session; (c) response cost - one happy

face was lost each time the target student engaged in an inappropriate tone of voice; (d) positive reinforcement - all group members were allowed to earn a tangible reinforcer (e.g., stickers, pencils, etc.) given that they had at least one happy face left over at the end of the session.

Results

Direct Observation Data

Baseline 1. Direct observation data indicate baseline occurrences of inappropriate tone of voice ($x = 11.0$) to greatly exceed those of appropriate tone of voice ($x = 1.0$) in the structured play setting, as indicated in Figure 1. Figure 2 shows that this finding also held to be true for the classroom setting (x -inappropriate = 4.5, x -appropriate = 1.5). Figure 3 indicates the same result in the recess setting (x -inappropriate = 5.7, x -appropriate = 1.3).

All collateral behaviors are reported only for the structured play setting, with the exception of ignoring teasing as this behavior was most pronounced during the recess setting. Figure 4 shows that refusal to cooperate ($x = 3.75$) occurred substantially more frequently than cooperating ($x = 1.0$). Similarly, Figure 5 indicates that inappropriate ignoring of negative comments ($x = 1.7$) was higher than appropriate ignoring ($x = 0.33$). Figure 6 shows that other inappropriate behaviors were also relatively high ($x = 4.0$). Figure 7 indicates that Neil's inappropriate social initiations ($x = 4.25$) were much more frequent than appropriate social initiations ($x = 0.75$).

Social skills training. Following social skills training, use of an appropriate tone of voice improved slightly for both the structured play setting (x-appropriate = 3.6) and the recess setting (x-appropriate = 2.0). However, there was no meaningful change in the frequency of use of an inappropriate tone of voice in the structured play setting. Both appropriate and inappropriate tone of voice improved in the classroom.

Following social skills training, appropriate occurrences of cooperating (x = 2.67) exceeded inappropriate occurrences (x = 1.0). Appropriate occurrences of ignoring (x = 1.33) were slightly greater than occurrences of inappropriate responding (x = 1.0). There was a decrease in other inappropriate behaviors (x = 2.33). Appropriate social initiations (x = 0.0) were far less than inappropriate social initiations (x = 4.33).

Treatment 1. During Treatment 1 there was a substantial change in tone of voice across all settings (Structured play: x-inappropriate = 6.7, x-appropriate = 5.0; Classroom: x-inappropriate = 0.0, x-appropriate = 0.0; Recess: x-inappropriate = 3.5, x-appropriate = 1.5).

Both appropriate (x = 1.67) and inappropriate (x = 0.33) cooperating decreased during this treatment. Likewise, both inappropriate ignoring (x = 0.66) and appropriate ignoring (x = 0.33) decreased during this phase. However, these reductions reflect a lack of opportunity to ignore teasing as the behavior of Neil's peers had changed.

There was also a marked decrease in other inappropriate behaviors ($x = 0.33$). Social initiations became more positive ($x = 0.66$) and less negative ($x = 0.0$). However, it is believed that this effect was most likely due to the therapist component (prompts) of the intervention, as most peers appeared reluctant to either prompt or enforce the contingency for inappropriate behavior (loss of a turn).

Baseline 2. Immediately following Treatment 1, a reversal was implemented in which all treatment components were withdrawn. This return to baseline indicated both that the treatment appeared to influence Neil's behavior and that there had not been a lasting treatment effect.

Inappropriate responding returned to near Baseline 1 levels in most settings (Structured play: $x = 10.7$; Classroom $x = 0.0$; Recess $x = 4.0$). However, appropriate responding increased relative to Baseline 1 levels in all settings (Structured play $x = 4.6$; Classroom $x = 1.3$, Recess $x = 3.0$).

Appropriate cooperating remained constant ($x = 1.67$) and there was a further decrease in inappropriate cooperating ($x = 0.0$). At this point both appropriate and inappropriate ignoring did not occur for the remainder of the study ($x = 0.0$). There was a slight increase in other inappropriate behaviors ($x = 2.0$). There were also increases in both appropriate ($x = 2.0$) and inappropriate social initiations ($x = 0.33$).

Treatment 2. In order to more fully implement the peer

component of the intervention, Treatment 2 involved the use of a peer confederate. This intervention resulted in high levels of inappropriate tone of voice for all conditions (Structured play: $x = 9.0$; Classroom: $x = 4.3$; Recess: $x = 15.0$). Mixed results were obtained for appropriate responding, with increases in structured play ($x = 7.0$) and the classroom ($x = 2.0$) and a decrease in recess ($x = 0.0$).

Both appropriate and inappropriate cooperating ceased to occur ($x = 0.0$) during this phase. Other inappropriate behaviors decreased further ($x = 0.66$). Both appropriate ($x = 2.0$) and inappropriate ($x = 0.33$) social initiations remained constant.

Treatment 3. Treatment 3 consisted of a treatment package which included peer prompts as in Treatment 1, but with the addition of a group reinforcement contingency. In addition, the criterion for reinforcement was progressively increased in order to obtain an acceptable range of inappropriate responding. This treatment proved to be most effective in reducing inappropriate responding in all settings (Structured play: $x = 1.2$; Classroom: $x = 1.0$; Recess: $x = 0.8$) as well as increasing appropriate responding in all settings (Structured play: $x = 11.3$; Classroom: $x = 6.0$; Recess: $x = 4.0$).

During this phase there was a slight increase in appropriate cooperating ($x = 0.5$) and inappropriate cooperating remained at zero. Other inappropriate behaviors increased slightly ($x = 0.75$). Both positive ($x = 0.75$) and

negative ($x = 0.0$) social initiations decreased during this treatment.

Treatment 3 generalization. Due to the apparent treatment and generalization effects that were found as a result of Treatment 3, the next phase involved the implementation of this treatment in the recess setting and simultaneous withdrawal of treatment during the structured play setting. Results indicate an increase in inappropriate responding in the structured play setting ($x = 4.3$) and a decrease in inappropriate responding in the recess setting ($x = 1.0$). Appropriate responses steeply declined during the the structured play setting ($x = 10.3$), but remained stable in the recess setting ($x = 4.8$).

Both appropriate ($x = 0.0$) and inappropriate ($x = 0.0$) cooperating remained very low. Other inappropriate behaviors increased slightly ($x = 1.75$). There was also an increase in positive ($x = 2.0$) and negative ($x = 0.5$) social initiations.

Treatment 3 reversal. In order to verify the original results of Treatment 3, the intervention was introduced in the structured play condition once again, while the recess setting served as a generalization setting. Results indicate that average inappropriate responding remained relatively low across all conditions (Structured play: $x = 2.5$; Recess: $x = 0.0$) while appropriate responding remained relatively high (Structured play: $x = 9.5$; Recess: $x = 5.5$).

Both appropriate and inappropriate cooperating remained

low ($x = 0.16$). A marked decrease in other inappropriate behaviors was observed ($x = 0.0$). There was a decrease in appropriate social initiations ($x = 0.5$) and inappropriate social initiations ($x = 0.0$).

Follow-up probes. Upon completion of the study follow-up probes were conducted periodically to determine maintenance of treatment effects. Levels of appropriate tone of voice remained higher than baseline levels (Structured play: $x = 8.3$; Recess: $x = 3.7$; Class: $x = 2.7$). Levels of inappropriate tone of voice were only slightly lower than baseline levels (Structured play: $x = 8.3$; Recess: $x = 4.0$; Class: $x = 0.2$).

Appropriate cooperating ($x = 0.33$) and inappropriate cooperating ($x = 0.33$) remained at low levels. Both appropriate ignoring ($x = 0.0$) and inappropriate ignoring ($x = 0.0$) remained low as well. Other inappropriate behaviors remained low ($x = 1.67$) when compared to baseline occurrences. Both appropriate and inappropriate social initiations remained very low ($x = 0.0$).

Secondary Dependent Measures

Social skills rating scale. Teacher ratings of Neil's behaviors on the SSRS indicate that he falls below average compared to same age peers in the performance of appropriate social skills (Standard score = 84; Percentile rank = 14) and that he continues to exhibit more problem behaviors (Standard score = 125; Percentile rank = 95). In addition he is below average in academic competence (Standard score = 76; Percentile rank = 5).

Parent ratings also indicate that he falls significantly below average in the performance of appropriate social skills (Standard score = 75; Percentile rank = 5) and that he exhibits more problem behaviors than same age peers (Standard score = 125; Percentile rank = 95).

Child behavior checklist. Teacher ratings of Neil's behavior on the CBCL indicate that of the eight subscales, his behavior was significantly above average, as indicated by a T-score of 70 or greater, in the following areas: somatic complaints (T = 70), social problems (T = 73), and thought problems (T = 70).

Parent ratings on the CBCL indicate above average behavior in the following areas: somatic complaints (T = 77), anxiety/depression (T = 73), and social problems (T = 87).

Peer sociometric ratings. Neil was not nominated by peers prior to intervention as someone in their class with whom they most or least liked to work or play. Neither was he nominated after intervention.

Discussion

The results of this investigation contribute to the existing social skills literature in several ways. First, traditional approaches to social skills interventions are not always effective, as indicated by the results of the social skills training condition. During social skills training, Neil demonstrated a knowledge of appropriate social skills. However, when interacting with peers he

failed to implement this knowledge. This leads to a possible distinction between social skills deficits and performance deficits.

Treatment 3 which involved both peer mediation and a group contingency had the most significant effect on all target behaviors when compared to baseline observations. This decrease was also accompanied by a general increase in appropriate peer interactions. Another important finding is that generalization effects were demonstrated across settings and behaviors. However, response generalization was not immediate and these effects were not maintained. In addition, since Treatment 3 involved a combination of behavior approaches, the specific component that was most responsible for the change in behavior cannot be determined.

Another point of interest is that while Treatment 1 was effective in changing Neil's behavior, this effect was most likely due to prompts from the therapist, as peers rarely suggested that another peer lose a turn in the game and refrained from prompting each other. Interestingly, when the contingency (the loss of a turn) was removed and peer prompts alone were administered in Treatment 2, the inappropriate behavior escalated. This could be related to previous results of a functional analysis of Neil's behavior which indicated that much of his inappropriate behavior was maintained by peer attention.

It is important to realize that some generalization effects can be attributed to the changes in peer behavior

rather than changes in the target student's behavior. For example, both cooperation and ignoring negative comments improved with no direct intervention. While Neil's behavior did change, it was most likely due to the fact that he was no longer being teased by other students.

It is important to note that tone of voice was the only specific target behavior during intervention. Thus, the changes in both cooperating and ignoring negative comments, as well as a decrease in other inappropriate behaviors, indicate a generalized treatment effect during the intervention. The generalization of treatment effects to other social behaviors is especially encouraging as it greatly increases the overall utility and efficiency of these kinds of treatments. However, generalization across behaviors has only rarely been demonstrated as a result of social skills intervention.

Several limitations of the results should be considered. While tone of voice is clearly a social behavior that was identified as being highly disruptive to the classroom, it may not generally be considered a conventional social skill. For example, the existing social skills training curriculum had to be modified in order to address this particular problem behavior. The very nature of this behavior might also present more of a resiliency to long term effects of treatment.

Another possible limitation of the results to be considered is the measurement of cooperating. It is

possible that frequency counts do not adequately represent the severity of disruption that a refusal to cooperate presents. For example, a child might refuse to cooperate with a request for a period of three minutes before he agrees to comply. Frequency counts would result in one occurrence of inappropriate cooperating and one occurrence of appropriate cooperating, when obviously, the inappropriate cooperating was much more prevalent. Timed interval measurement might demonstrate the extent of the lack of cooperation more accurately.

The lack of maintenance effects as demonstrated by follow-up probes is also a limitation. This result was not entirely unexpected as time constraints precluded procedures that might have facilitated maintenance (e.g., fading). The frequency of absences from school and the schedule of the public school system was somewhat disruptive (e.g., holidays, summer vacation, etc.) and limited the amount of time for programming for maintenance.

While this intervention was demonstrated to be effective, it is important to remember that these effects were demonstrated with only one child. The effectiveness of using this type of social skills intervention for children of different ages and with different problem behaviors would be another significant contribution to the existing literature.

In conclusion, peers can be effective in teaching social skills to other peers and can facilitate the

inclusion process for some children. Also, it is important to note the distinction between skills deficits and performance deficits. This distinction indicates that more emphasis should be placed on situational and motivational variables which might influence a child's behavior. Finally, the results of this study are very encouraging for potential generalization. However, it is clear that generalization and maintenance must be explicitly programmed. The most effective strategies for doing so continue to remain largely unknown. A final implication for future research is the effectiveness of social skills interventions in the prevention of later maladaptive behaviors.

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Figure Captions

Figure 1. Occurrences of appropriate and inappropriate tone of voice in the structured play setting.

Figure 2. Occurrences of appropriate and inappropriate tone of voice in the classroom setting.

Figure 3. Occurrences of appropriate and inappropriate tone of voice in the recess setting.

Figure 4. Occurrences of appropriate and inappropriate cooperating in the structured play setting.

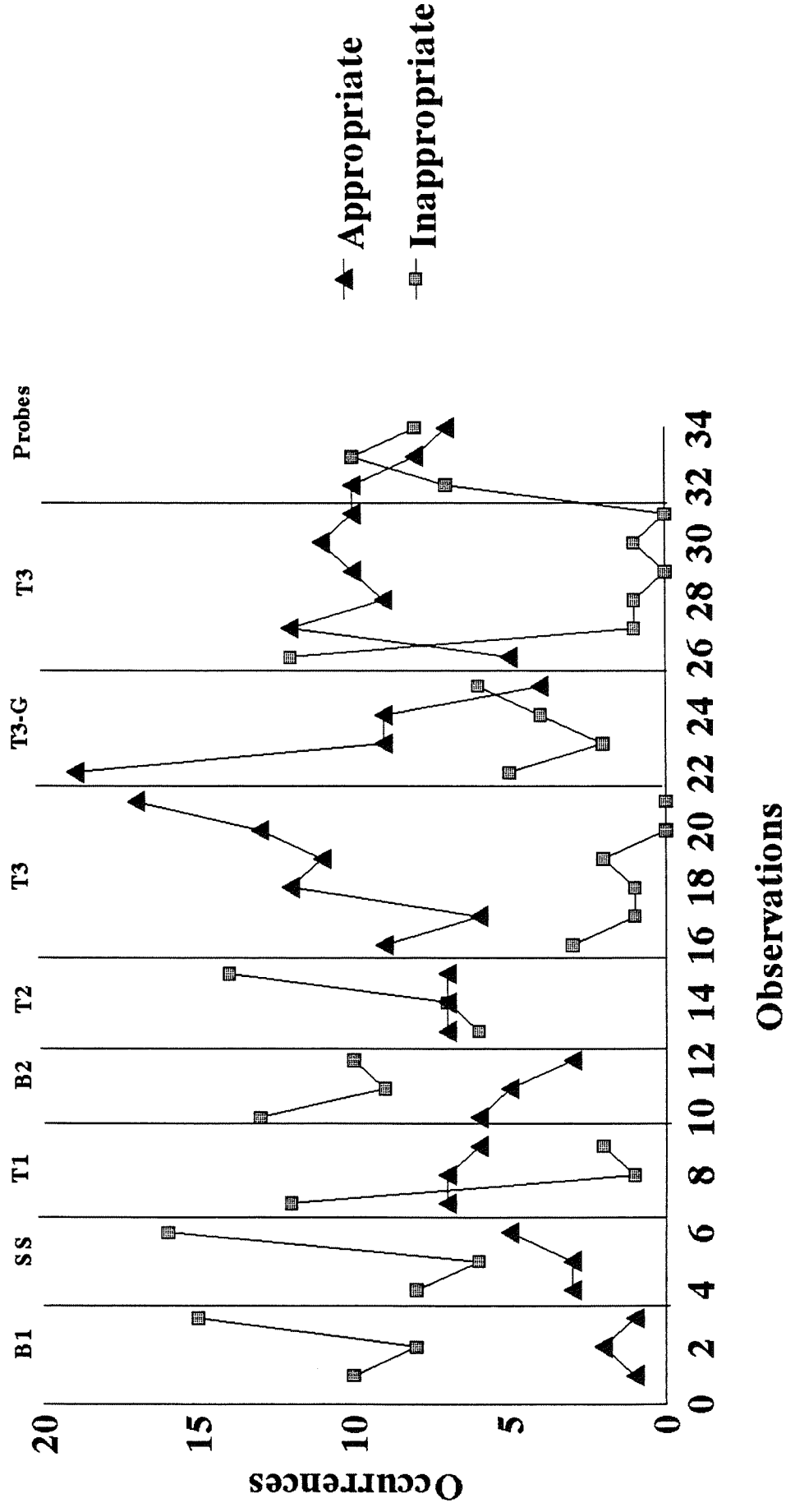
Figure 5. Occurrences of appropriate and inappropriate ignoring teasing in the recess setting.

Figure 6. Occurrences of other inappropriate behaviors in the structured play setting.

Figure 7. Occurrences of appropriate and inappropriate social initiations by Neil in the structured play setting.

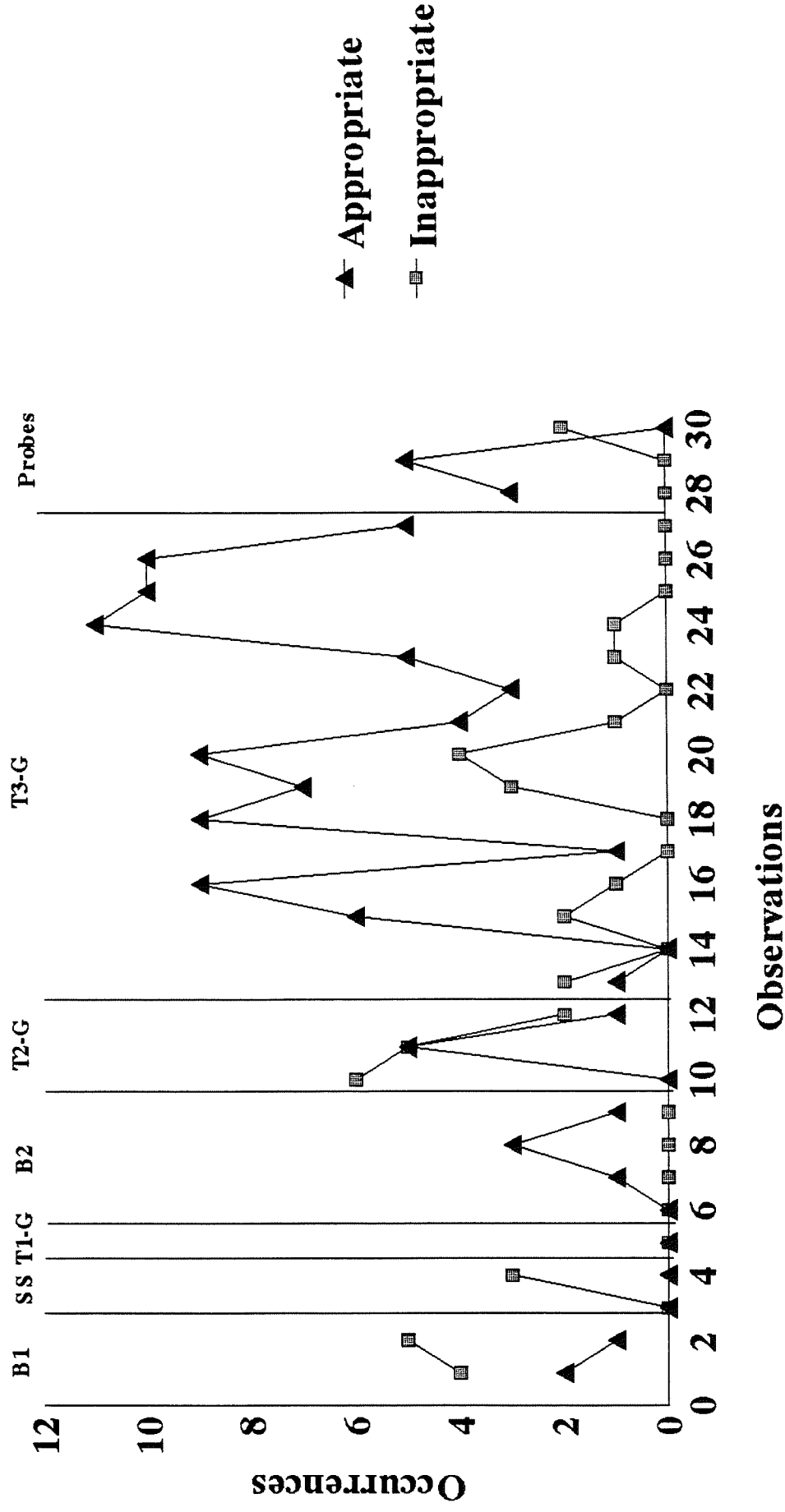
Tone of Voice

Structured Play



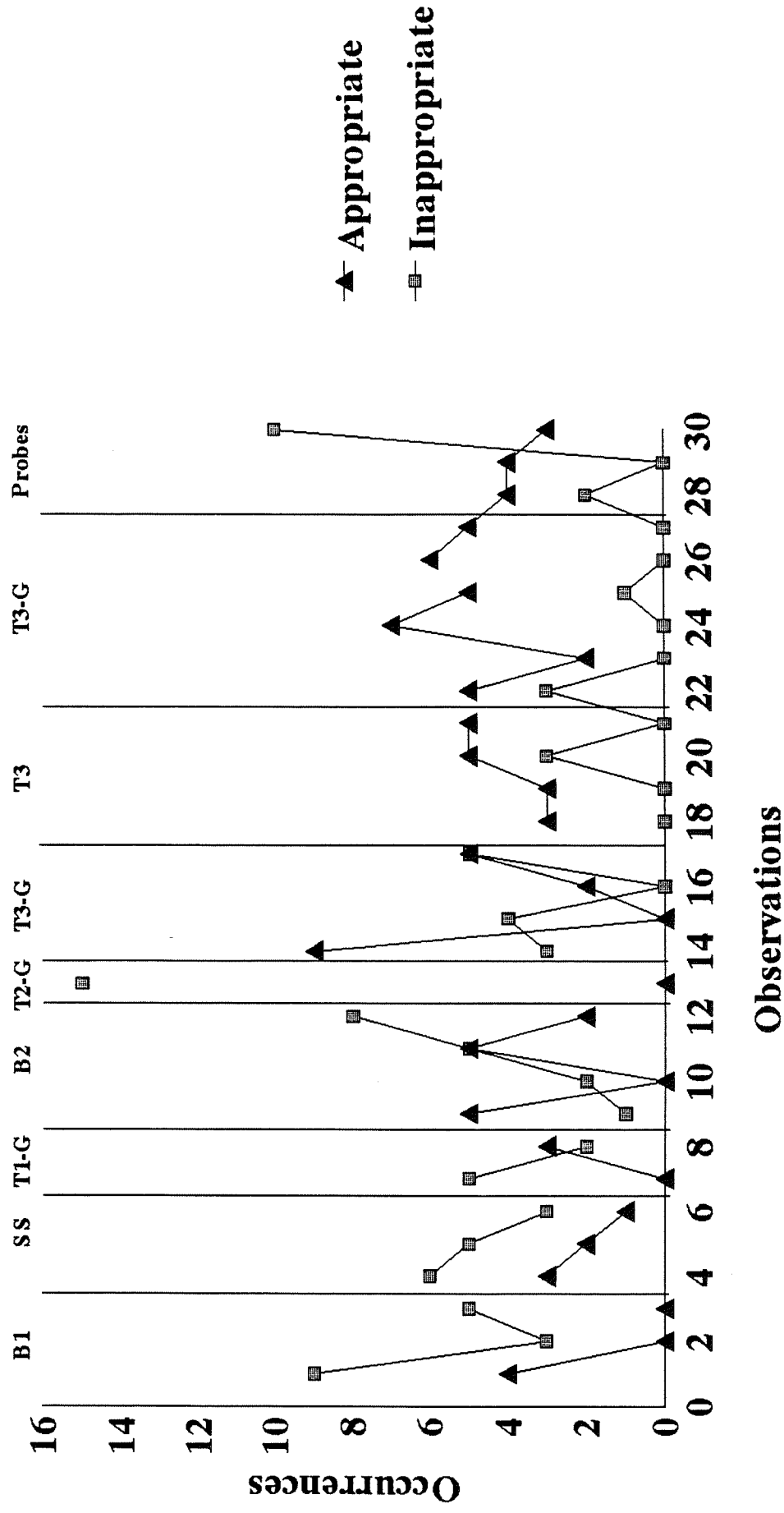
Tone of Voice

Class



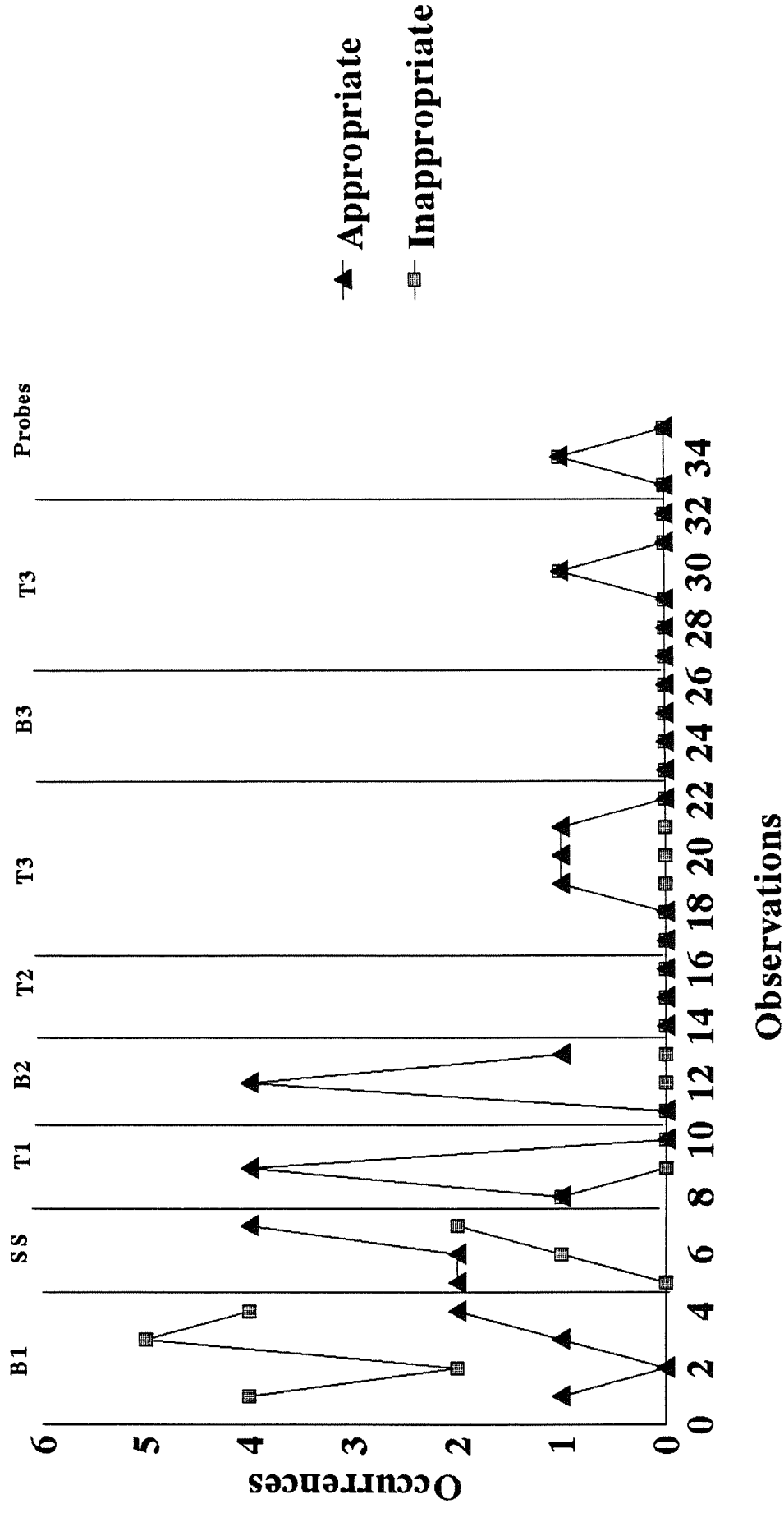
Tone of Voice

Recess

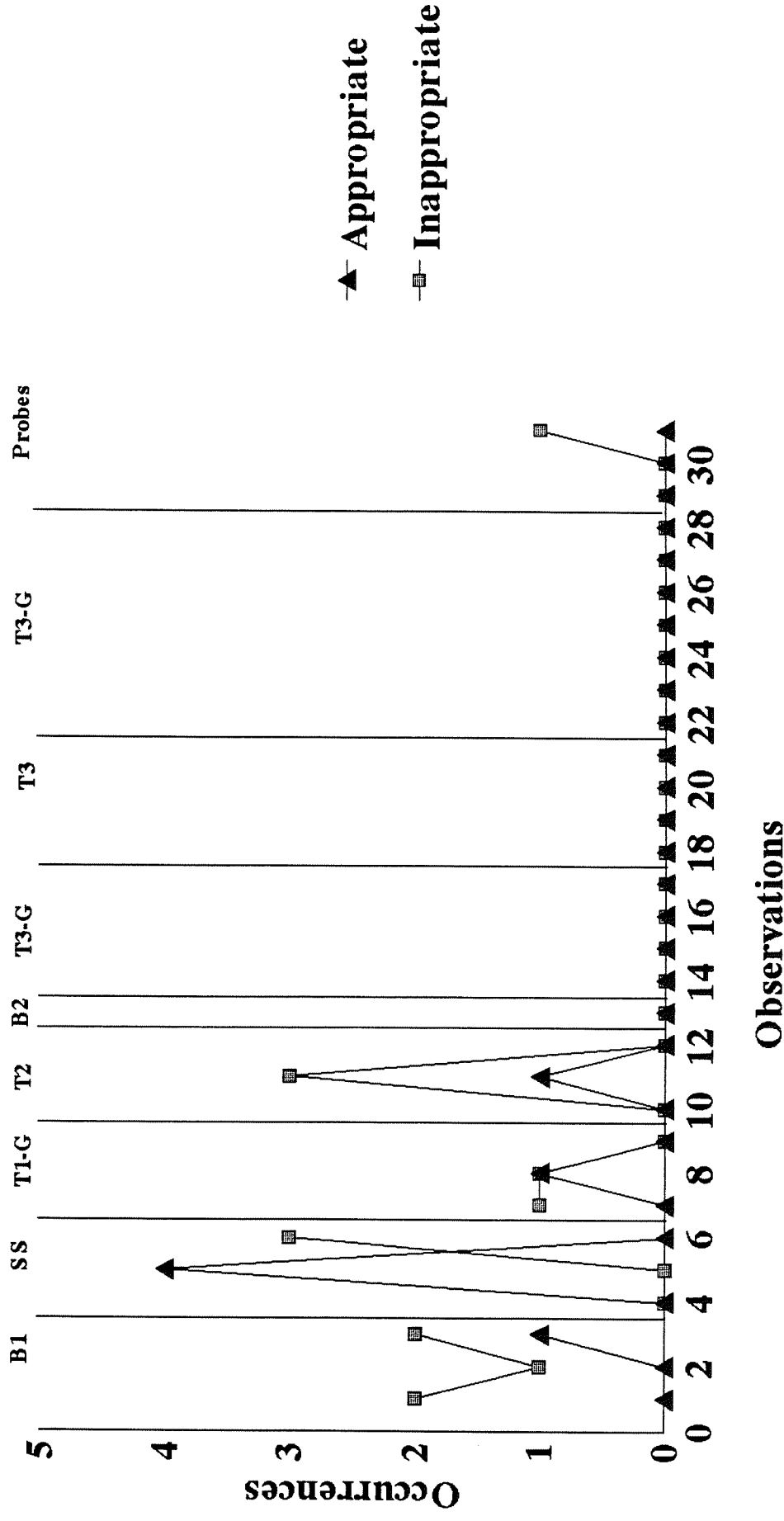


Cooperating

Structured Play

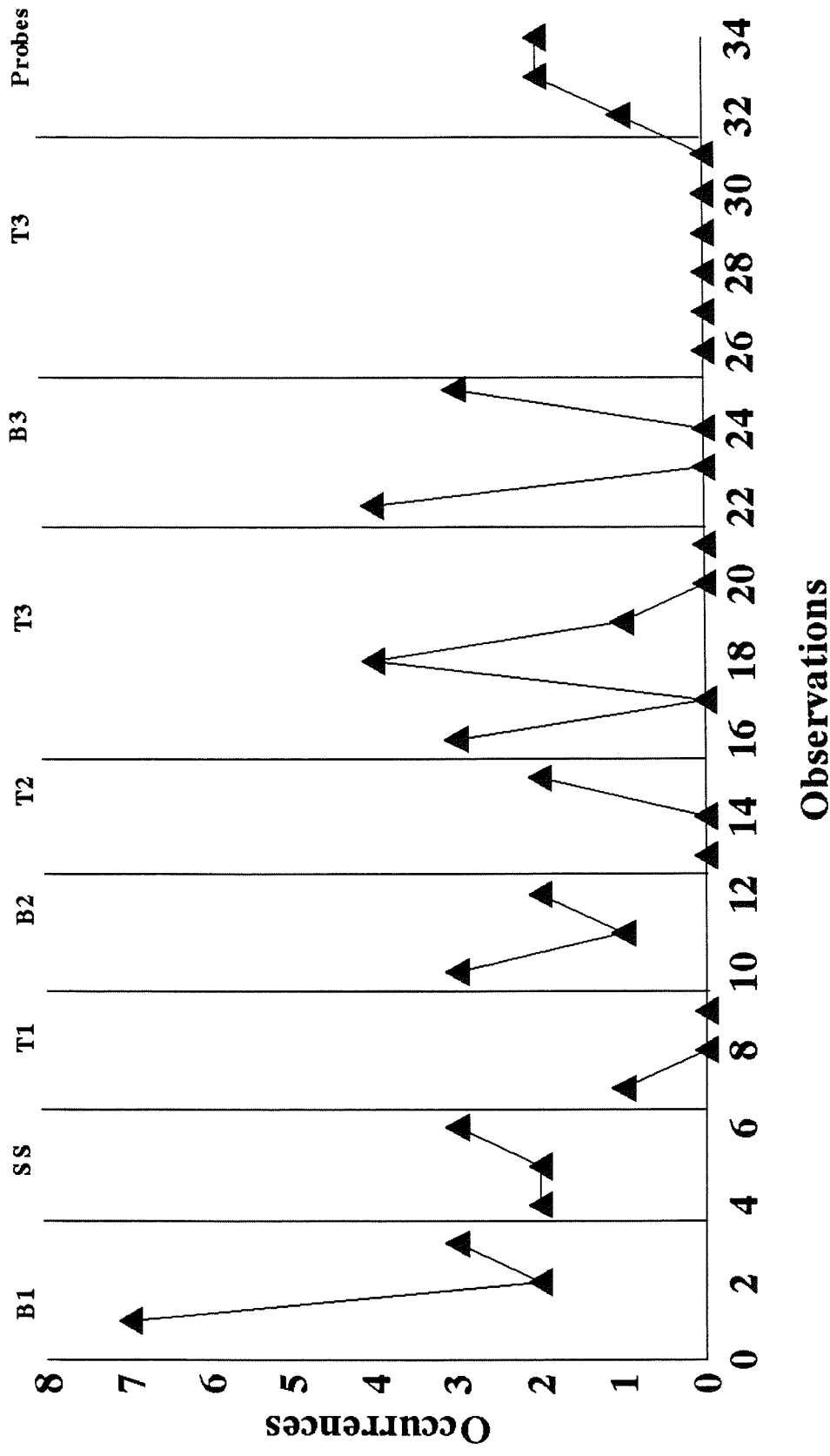


Ignoring Recess



Other Inappropriate Behaviors

Structured Play



Social Initiations by Neil

Structured Play

