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Analysis of the Effectiveness of Social Skills Intervention in Improving the Use of Validating Comments Used by Children with Specific Language Impairments in Peer Group Interactions

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ABSTRACT

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This study examined the efficacy of a social skills training program on the use of validating comments and negative comments by children with specific language impairment. The present study is an extension of a previous research project. Four children (three female, one male) with specific language impairment, ages 6 to 11, participated in a ten week social skills training program which involved direct instruction of target concepts, peer interactions with classmates, and evaluation of the use of target skills by reviewing videotaped peer interactions. The individual performance of each subject was compared to the age- and gender-matched typical peers with whom they interacted during the weekly game sessions of the intervention program. The intervention program was successful in improving the use of validating comments for three of the four subjects (AA, CS, and JH). The subjects' increased use of validating comments, however, did not appear to significantly affect or change the participants' use of negative comments. It was also found that, while individual performance improved, three of the four participants (AA, MD, and CS) consistently produced fewer validating comments than did their typical peers during the weekly game sessions. Follow-up data for the participants indicated that the three participants (AA, CS, and JH) who showed improvement in their use of validating comments over the course of treatment appeared to maintain their increased skill after the treatment ended. Possible explanations for these results are discussed, and recommendations are made for future social skills training programs.

Keywords: Specific language impairment, Pragmatic language impairment, Social skills, Validating comments, Peer interactions, Intervention, Prosocial behaviors, Negative comments

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Introduction

The term *language impairment* (LI)[1] refers to children who have difficulty acquiring language despite typical growth in other aspects of development (Leonard, 1998). Children with LI have difficulty learning language rules, registering different contexts for language, and constructing word-referent associations for lexical growth (Owens, 2004). Although this definition implies that children with LI have difficulty only with language, recent research has suggested that this is not the case (e.g., Schwartz, 2009). One area of particular interest has been the development of social competence.

Children with LI often have more social problems than their typically developing peers. For example, school-aged children with LI have been observed to take minor roles in cooperative learning, contribute little to interactive situations, and have poorer negotiating strategies than their typically developing peers (Brinton, Fujiki, & Higbee 1998; Brinton, Fujiki, & McKee, 1998). In terms of conversational behaviors, children with specific language impairment (SLI) have difficulty initiating interaction, and they provide inappropriate responses during interactions (Liiva & Cleave, 2005). These behaviors lead to conversational failures. As a result, these children are less likely to interact with other children as they experience repeated failure. Rice (1993) proposed that this cycle continues to worsen as children with SLI are continually ignored by other children and experience few interactional opportunities.

Rice and her colleagues found that children with SLI preferred interacting with adults rather than peers (Rice, Sell, & Hadley, 1991). These children also tended to ignore conversational bids from other partners and be ignored by partners (Hadley & Rice, 1991). According to Brinton and Fujiki (2005), when children with LI do contribute to conversation,

[1] The terms LI and SLI are used as synonyms in this paper. Where authors have used one term or the other, the same term has been used.

they may ramble off topic or ignore the communicative needs of their listeners. As a result, these children often experience negative social outcomes from these interactions. Negative outcomes reported include spending time alone at recess, not being highly valued playmates, difficulty making friends, loneliness at school, and lacking peer contacts outside of school.

The problematic social behaviors of children with LI have also been documented by teacher ratings. For example, Fujiki, Brinton, and Todd (1996) administered the Social Skills Rating System-Teacher Form (Gresham & Elliott, 1990) to teachers of children with LI. Overall the authors found that teachers rated children with SLI as having more behavior problems and poorer social skills than their typical peers.

Fujiki, Brinton, Morgan, and Hart (1999) asked teachers to complete the Teacher Behavior Rating Scale to rate subtypes of withdrawn and sociable behavior in school-aged children with LI. The ratings indicated that children with LI demonstrated significantly higher levels of reticence and solitary-active withdrawal than did typical children in the same classrooms. The children with LI were rated as wanting to interact but being fearful to do so (reticence). These children were also actively excluded by their peers (solitary active withdrawal). This study also found that typical children had better prosocial behaviors than children with LI.

Numerous other studies have indicated that children with LI have social difficulties (Brinton & Fujiki, 2005). Although there is a large body of research describing the social problems of children with LI, there is currently little research available on intervention strategies to address these problems. This quandary is emphasized by Gerber, Brice, Capone, Fujiki, & Timler, (in press), who, after conducting an extensive review of the literature available for intervention related to using language to effectively interact with others, found that: “The paucity

of empirical literature in the area of language use in social interactions was surprising, even for experts in the area" (p. 1).

The goal of the current study was to investigate the efficacy of an intervention designed to improve the social interactional skills of children with LI by increasing their production of validating comments. Validating comments are comments that are directed to peers for the purpose of encouraging further interaction. They can include, but are not limited to, sharing information, expressing feelings, asking peers questions about themselves, and providing peers with help to carry out tasks (Bierman & Furman, 1984; Fujiki et al., 1996). In typically developing children, validating comments have been shown to mediate children's facility with a variety of important social tasks. Children with LI, however, are less likely to utilize these types of comments when interacting with peers. Comments made by children with LI tend to be more self-centered, irrelevant, and conflicting. Often times, instead of making relevant, validating comments that would allow them to participate in an interaction, these children tend to wait and hover around a group of peers, only to be ignored. As a result, they have more negative peer experiences (Liiva & Cleave, 2005). Therefore, it is hoped that increasing the participants' use of validating comments will provide them with more successful interaction strategies and lead to more positive peer interactions.

The intervention to improve the use of validating comments was conducted during a two-semester long project that was designed to investigate and improve the social skills of children with LI. Using videotape recording of the intervention sessions, the number of validating comments produced before the intervention, during the intervention, and after the intervention was examined. The research questions considered in analysis of the data were as follows:

1. What was the effect of the social skills training program on the quantity of validating comments produced by children with LI?
2. How did the production of validating comments by children with LI compare with that of their typical peers before and after the intervention?
3. How did the production of negative comments by children with LI compare with that of their typical peers over the course of the intervention?

Review of Literature

In the past two decades, numerous studies have detailed an array of negative social behaviors associated with LI. These studies have demonstrated how socially debilitating LI can be. Children with LI experience problems with social tasks including difficulty accessing interactions (Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993; Liiva & Cleave, 2005), difficulty negotiating (Brinton, Fujiki, & McKee, 1998), difficulty resolving conflicts (Horowitz, Jansson, Ljungberg, & Hedenbron, 2005), difficulty with cooperative learning (Brinton, Fujiki, & Higbee, 1998), and problematic social goals (Timler, 2008). These problems are associated with a variety of poor social outcomes, which include fewer friends (Durkin & Conti-Ramsden, 2007; Fujiki, Brinton, Hart & Fitzgerald, 1999), poor peer acceptance (Gertner, Rice, & Hadley, 1994), higher rates of reticence (Fujiki, Brinton, Morgan, & Hart, 1999; Hart, Fujiki, Brinton, & Hart, 2004), and higher rates of victimization, or being bullied (Conti Ramsden & Botting, 2004). Although children with LI have a range of social difficulties, there have been relatively few studies which have examined the efficacy of social communication interventions for school-aged children with LI. The following review examines interventions aimed at improving social skills in children with LI.

Treatment within Various Areas of Social Communication

The remainder of this review will focus on social communication intervention strategies used with school age children with LI. Over the past three decades, a small number of intervention studies focusing on LI have been performed with children in this age range (Gerber, Brice, Capone, Fujiki, & Timler, in press). Most of these studies have been narrowly focused on specific deficiencies commonly observed in LI. Only a small subset of this research deals with specific social skills intervention.

Comprehension monitoring and conversational repairs. In 1986, Dollaghan and Kaston developed an intervention program designed to teach children with LI to monitor their comprehension breakdowns so they could ask for clarification when needed. Four children identified with LI participated in the study. All of the children were in first grade and attending a special rehabilitation school setting. The comprehension monitoring treatment program was divided into four phases: (a) identify, label, and demonstrate three behaviors associated with orientation to listening; (b) detect and react to messages containing *signal inadequacies*; (c) detect and react to messages containing inadequate information; and (d) identify and react to messages exceeding the child's comprehension level. Subjects participated in individual 20-minute sessions, three days a week with the second author, for four to five weeks. The individuals participated until they met specified criteria, and then they participated in daily probe tasks for three to six weeks following termination of treatment. The probe tasks and reports from teachers and parents indicated that the subjects improved in their monitoring skills and suggested that learned skills generalized.

Merrison and Merrison (2005) studied the ability to produce conversational repairs in three target groups: children with Pragmatic Language Impairment (PLI), children with SLI, and typically developing children. Children with PLI have difficulty with the use of language in social interactions. As cited in this study, Bishop (2000) defined pragmatic difficulties as "communicative problems that have to do with the appropriate use of language in a given context" (p. 100). These children may be using structurally well-formed language, however they often find it difficult to take turns during conversation, maintain the topic of conversation, make inferences, and repair communication that has broken down. In this study, the authors differentiated children with PLI from children with SLI by classifying children with

SLI as "children with language impairments with no pragmatic impairments" (193). Each of the three groups contained three children, aged 7-11 years. The researchers employed a *Map Task,* developed by Brown, Anderson, Shillcock, and Yule (1984), to elicit natural yet restricted dialogue from these children. The task involved the clinician describing a route to the child. The child then had to replicate this route on paper as closely as possible. The clinician's script contained inadequate information for the purpose of eliciting repairs from the child. The children were advised to ask questions if they had any uncertainties. This task was used for pre- and post-assessment purposes. The three children with PLI received weekly therapy for six weeks, focusing on pragmatic skills. The children with SLI received intervention that focused on language forms, while the typical children received no treatment. All three groups were reassessed following therapy. Results demonstrated that the typical group and the group with SLI exhibited a tendency to initiate repairs by asking appropriate questions and achieved greater task success than the group with PLI. However, the group with PLI did show improvement, following intervention, in the ability to initiate repairs.

Topic manipulation. Topic performance has been identified as a skill that has important implications for language interaction. The rationale behind this intervention was that topic provides a means for coordinating conversations for the purpose of developing interpersonal relationships. It also provides a framework for conversational relevance (Bedrosian 1985; Bedrosion & Willis 1987). Bedrosion and Willis worked with a single 5-year-old male who needed improvement in topic initiation, especially relating to topics outside of the *here-and-now*. The child participated in two 30-minute sessions a week for six months. Treatment sessions consisted of providing instruction, providing modeling, and providing feedback within a communicative context. The clinician encouraged the child to talk about feelings he had

experienced and the activities he had engaged in days prior to the session. A sample intervention activity might involve the clinician asking: "What did you do yesterday?" to elicit the desired information. The child was instructed to request similar information from the clinician. The child also engaged in various activities, after which he and the clinician would discuss what had just taken place. For example, the clinician would ask: "What did we just do?" "What did we do next?" The clinician then asked the child to discuss future activities that he anticipated would take place following the session and request similar information from the clinician. The clinician would also engage the child in activities in which they would discuss what would happen in future sequences before the activity was completed. For example, if the activity were making cards, the clinician would ask the child "What will we do next?"

Bedrosian and Willis (1987) collected five-minute samples prior to starting each session, during which time the child was probed for use of the target behaviors. Parents and teachers reported an increase in the child's use of memory and future-related topics both during and following the intervention, which were the targeted goals of the program. The authors also reported that the child demonstrated an increase in the variety of topics initiated. Concurrent with gains in topic were measurable increases in syntactic development. Generalization was not specifically measured overtime, so long-term effects were unknown.

Narrative skills. Klecan-Aker (1993) investigated an intervention designed to improve story telling skills with one male child with LI, age 8;8 (year; months). Initially, two oral and two written stories were elicited from the subject to assess his story-telling ability. Treatment consisted of two 1-hour sessions a week for 12 weeks. The focus was on teaching story grammar components using the analogy of making a cake. The intervention consisted of a teaching portion, a multiple-choice portion, a fill-in-the-blank portion, and finally, elicitation of two

spontaneous stories. As a result of the therapy, the child demonstrated an increased level of complexity for story-telling, including increased use of story grammar components. However, there was no carryover to expressive and receptive language skills, as indicated by comparing the child's performance on pre- and posttests.

Narrative (or story-telling) skills were also examined by Swanson, Fey, Mills, and Hood (2005). Ten 7 to 8-year-old children with SLI participated in a six-week narrative-based language intervention program. Pretreatment sessions required children to generate two oral narratives based on two subsets of pictures after first listening to a model provided by the clinician. For treatment, each child had goals focusing on increasing complex syntax as well as the production of narratives. These goals were further tailored to each child's abilities. Some examples of specific narrative production goals were: including setting for the story, including characters, or providing and ending for the story. Therapy sessions were individual, 50-minute sessions, three days a week for six weeks, conducted by the first and fourth authors of the article. Each therapy session followed a pattern of: warm-up activity; story retell-imitation task; brief sentence-imitation task; story generation task; and a retelling task to be completed at home. Post-experimental samples of the child generating narratives were also collected. Eight of the ten children made clinically significant improvement in narrative quality. However, the intervention was not set up to study treatment efficacy. The primary goal was to determine the feasibility of the intervention program. It was therefore not clear as to whether the gains made were due solely to the intervention.

Pragmatics. By definition, pragmatics connects linguistic, social, cognitive and emotional skills. Pragmatics also includes the ability to use language for different purposes, to participate in discourse, and to understand the communicative needs of one's partner. More

specifically, pragmatics is the "understanding and use of social rules for the purpose of interacting with others in social contexts" (Hyter, Rogers-Adkinson, Self, Simmons, & Jantz, 2001, p. 10). Several investigators have developed interventions, consisting of a variety of treatments, designed to address problems with these abilities, in various combinations.

Richardson and Klecan-Aker (2000) designed an intervention program to teach pragmatic language skills to children with learning disabilities. Treatment used an ABA design (baseline-treatment-baseline). Subjects were divided into two groups. The first group consisted of six males and three females, with a mean age of 8;1. The second group consisted of five males and six females, with a mean age of 7;3. Baseline testing consisted of criterion reference tests, which targeted social skills and language use. Following analysis of the baseline, a treatment program was designed based on the common weaknesses noted among the participants. These weaknesses included starting, maintaining, and ending conversation; internal responses; and descriptions of objects. The intervention lasted six weeks. Each session was divided into 10-minute segments, where each of the three areas was addressed sequentially. Both groups showed improvement in each of the three target areas: (a) conversation, (b) receptive and expressive identification of emotions, and (c) qualitative and quantitative description of objects, following the treatment program.

There are a few limitations to this study that are worth drawing out. The subjects in this particular study were identified with learning disabilities, not language impairment. Along with that, the subjects attended a special school specifically for children with learning disabilities. Therefore, the subjects had no opportunities to interact with typical children. Another limitation of this study is that the treatment only lasted for six weeks, during which time they targeted several pragmatic behaviors. While the subjects did show improvement, there is no indication

that this improvement was long-term. The researchers did obtain reports from the teachers and parents of the subjects following the study, indicating that they noticed improvement in their conversation skills. However, if the researchers had done some additional observations following the study, where they watched the subjects interacting with peers in the classroom or on the playground to see how the skills had generalized, this could have been a strength to the study.

Adams (2001) studied the effect of diagnostic and intervention procedures on two children diagnosed with PLI. Case A was 10;3 at the time of the study. The child spoke fluently, but not verbosely. Therapy goals were derived from a conversational analysis. Intervention was based on a combined developmental approach, which was described as involving modeling, followed by practicing age appropriate, relevant pragmatic acts. Therapy also included work with metapragmatic abilities such as helping the child become more aware of communication rules and knowledge (Anderson-Wood & Smith 1997). An example of this ability would be to recognize the need to ask for clarification when instructions were not understood, rather than producing an inappropriate response.

Case A participated in therapy for 10 weeks, three days a week with a speech-language pathologist (SLP) in a mainstream classroom. Following intervention, another conversational analysis was conducted. The conversation sample was analyzed for the following communicative acts: requests for information, providing information that was solicited, providing information that was not solicited, and appropriately responding to requests for clarification. In this follow-up analysis, it was found that Case A did not significantly increase the type or proportion of communicative acts used. However, one specific area where he did show improvement was increasing his production extended responses, where he provided

additional relevant information. This finding indicated that Case A experienced an increased ability to produce these answers, but did not do so frequently. Another improvement for Case A was that the proportion of *pragmatic mismatches* (i.e. providing inadequate information; providing information that was pragmatically problematic; or providing an immature response) he produced decreased significantly after therapy.

Case B was a psychiatric inpatient, age 7;3, at the time of the study (Adams, 2001). Assessments demonstrated that this individual could participate in conversation but became confused when the input level complexity was increased. After participating in a battery of tests, the researcher determined that Case B's deficit was more characteristic of SLI than PLI, and that he had significant word retrieval deficits. Case B experienced improved narrative skills and increased use of cohesive devices. Overall, Case B was more outgoing, confident, and willing to converse with others following therapy.

Adams and her colleagues explored the effects of social communication intervention for children with PLI (Adams, Lloyd, Aldred, & Baxendale, 2006). Children recruited for study were between the ages of 6;0 and 9;11 and attended mainstream primary schools. Participants were identified as having difficulty with pragmatics by speech and language practitioners. The presence of autism was ruled out using the Autism Diagnostic Interview-Revised (Lord, Rutter, & Le Couteur, 1994). However, participants with SLI and PLI were not differentiated because there are no clear-cut criteria for the differential diagnosis of the two disorders.

The study followed a series single case model in which three children participated in term 1, and three children participated in term 2. All children participated in a pre-assessment test battery followed by an eight-week therapy program that took place three days a week for 1 hour each time. The intervention was administered by a SLP, and it was built on the framework

discussed in Adams (2005). Intervention concentrated on social aspects and on language pragmatics. Intervention programs were individually designed to mirror the child's profile within this model (Adams et al, 2006).

All individuals in this study showed substantial change in one or both of the quantitative outcome instruments used—conversation analysis, standardized language tests, and parent/teacher questionnaire. Despite these gains, intervention outcomes were not uniform across all individuals, reflecting the complex nature of pragmatic impairments. The researchers did determine that this treatment generalized to other aspects of language not directly addressed, including sentence formulation and language processing. The researchers suggested that this outcome may have been the result of indirect training of auditory processing skills. Interviews with parents and teachers indicated that the greatest gains were noted in the children's conversational skills, social flexibility, and attention in the classroom.

Unfortunately, Adams et al. (2006) did not design the investigation to be a true efficacy study. Thus, the only evidenced based conclusion the authors could draw was that there was a signal of treatment change for PLI. Another limitation of this study was that it did not look at child-peer interactions, but rather measured change within the child as a result of the treatment. The authors indicated that no clinical implications should be drawn from this study, but further studies are necessary. They also proposed that there is much overlap between PLI and SLI; therefore the therapies applicable to SLI are also applicable to PLI.

In 2001, Hyter et al. implemented a pragmatic intervention program for boys who were diagnosed with language disorders and co-occurring emotional or behavioral disorders. The six boys who participated in this study were between ages 8;6 and 12;11. The authors employed a pretest-posttest correlational design. The participants were trained in four pragmatic behaviors:

describing objects to naïve listeners, providing step-by-step instructions to a novel listener, stating opinions about inappropriate behavior, and negotiating for a desired outcome.

The researchers used a role-play context to teach these behaviors. In describing objects, the participants were required to describe object attributes or functions without naming the objects. The listeners could not see the object. For the step-by-step directions task, participants had to provide a sequence for a familiar task in which they included all major steps involved in the task. Participants were then provided with hypothetical situations where they were asked to judge the appropriateness of the behaviors within those situations and how they would respond to those situations. Finally, participants were asked to present reasons about why they would desire a certain object, activity, or outcome, or *negotiate desired outcomes*. This was considered to be a highly sophisticated behavior because it required participants to adjust their communication styles to fit a variety of social contexts.

The researching clinicians taught each of these four skills over four different lessons, throughout the eight-week time period. The lessons were structured to include an introduction of the target behavior, presentation of oral and written directions for the therapy activity, and a role-play model of the desired behaviors, provided by the SLP and special education teacher. The results of this study demonstrated that the participants improved in their ability to provide attributes in describing objects and to provide arguments during the negotiating skills lessons. The behaviors were assessed through the use of informal conversation samples, where the participants role-played the skills, and through formal assessments. The two tests that yielded relevant results included the *Test of Pragmatic Language* (TOPL) and the *Behavior Evaluation Scale-2* (BES-2). The TOPL revealed upon follow-up that the participants demonstrated improvement in describing information, expressing judgment, considering the listener, and

understanding the listener. However, these benefits did not seem to influence the participants' ability to deal with situations encountered in the classroom, as suggested by the BES-2 scores.

Social communication problems. Adams (2005) outlined a framework for intervention targeting social communication problems, appropriate for school-aged children. She defined a social communication problem as "a limitation in the development of social, cognitive, and language skills necessary for contextually appropriate, meaningful, and effective interpersonal communication" (p. 182). Adams noted that there is presently little efficacy data available to support the appropriate selection of interventions for school-age children.

Adams (2005) suggested that the development of social communication is founded on four synergistic principles: social interaction, social cognition, pragmatics, and language processing. Adams' framework for social communication intervention for school-age children is based on these four principles. The social interaction, or social adaptation stage, has four main goals: (a) establish whether the child is developmentally ready for the social and language demands experienced; (b) establish a highly adapted communication environment in school and home; (c) adapt the school curriculum so that it is compatible with the child's strengths; and (d) establish monitoring of responses, so that conversational partners use language within the child's repertoire and avoid using complex language. The stage of social cognition, or social flexibility, has five goals: facilitating emotion understanding; enabling flexibility in routines; understanding nonverbal and verbal inference; understanding metaphors and hidden meaning, especially within social context; and focusing on coherence. Intervention at the metapragmatic level focuses directly on reflective abilities, explicitly talking about rules and conventions, and putting those principles into practice. Intervention at the language processing level focuses on modeling, individual practice, role-playing, practicing pragmatic skills in conversation, completing

metapragmatic tasks, instilling self-monitoring and coping strategies, and participating in rule affronting activities.

The purpose of this article was to propose an intervention model "as the basis for profiling social communication abilities to establish a package of communication care for children with social communication problems" (Adams, 2005, p. 186). Adams contends that this proposed framework can provide guidance for "principled interventions when used to profile individuals' capabilities" (p. 186). Therefore, this article does not provide an efficacious study of the intervention, but rather describes a model for intervention that can be individualized for children with social communication problems.

Similarly, a social skills training program was developed by Spence (2003) for young people, aged 7-18, with a range of social deficits. "The program [aimed] to teach a range of fundamental social skills and strategies to deal with commonly presenting social situations that present a challenge to young people" (p. 89). The components of this program started with behavioral social skills training, which included instruction, discussion, modeling, role-playing, feedback, and reinforcement. Perception of skills was also targeted in this intervention, meaning that children were taught how to interpret social cues. Self-monitoring and self-reinforcement techniques were also employed. Finally, the children were taught how to identify problems, predict outcomes, and how to successfully solve problems. Again, this is another study that described components of a social skills training program that have had documented success in the past, but it is not actually an efficacy study. However, Spence did suggest some methods that could enhance social skills training programs. These methods included focusing on components that will lead to greatest success for the child, ensuring adequate duration of training, extending training to naturalistic situations, and including typical peers in the intervention.

Peer group entry. Beilinson and Olswang (2003) examined the efficacy of an intervention strategy to teach access skills to preschoolers (Hadley & Scheule, 1998). Beilinson and Olswang used the intervention with kindergartners. There were three components involved in this intervention strategy: (a) the child was assigned to a role to establish the child as a part of the group, (b) the child was prompted by an adult to initiate interactions, and (c) the child was given a highly valued prop for the purpose of integrating him or her into the peer group. These components were selected because they "could provide linguistic support that might help make the peer-group entry process easier" (Beilinson & Olswang, 2003, p. 155). Beilinson and Olswang asked three questions in their study: (a) Will the intervention increase the child's use of high-risk behaviors and decrease their use of low-risk behaviors?; (b)Will intervention increase the child's use of props during peer-group entry?; and (c) Will intervention increase the child's time in cooperative play and decrease the amount of solitary play?

The participants were three kindergartners with LI, each examined as a case study (Beilinson & Olswang 2003). The children participated in 30-minute treatment sessions, three times a week, and 10-minute probe sessions, one time a week. Peer-group entry was facilitated in these treatment sessions by following a 5-step sequence. This sequence involved walking over to a friend, watching the friend, getting a similar toy as the friend, and participating in the same behavior as the friend. These four steps were considered *low risk* behaviors. The *high-risk* behavior, targeted more heavily during treatment, was sharing an idea with the friend. The sequence was taught using instruction, model, and prompt. A hierarchy of providing most support to least support was used. During the treatment sessions, the children were provided with five to eight opportunities for peer-group entry. Following the treatment sessions, the children participated in 45-minute free play with a peer of their choice in their classroom. As a

result of participating in this intervention, each of the three children increased their use of high-risk behaviors. However, two of those children still relied on low-risk behaviors as well. All three children increased their use of props in cooperative play. Positive changes were also seen in the children's cooperative play behaviors, and these behaviors were maintained.

The studies examined to this point have covered various aspects of social communication intervention for children with LI. However, there are limitations in each. All of the studies involved small groups of children, making generalization to the larger population difficult. Most of them did not focus specifically on children with LI, but also focused on children with PLI and language-learning disability. The majority of the studies did not target social skills directly, nor did they examine performance in mixed groups containing both children with typical skills and children with LI. Many of these studies also reported that the gains made in treatment did not generalize to other contexts, specifically contexts involving peer interaction. Several studies also reported that long-term effects were not measured, or that they were not designed to be efficacy studies, and therefore could not be applied clinically (e.g. Swanson, Fey, Mills, and Hood, 2005). It can be concluded from these studies that social communication interventions are promising, however, much more work on efficacy is needed (Adams, 2005; Gerber et al., in press).

Treatment to Change the Frequency of Pro- and Anti-Social Behaviors

Increasing the use of validating comments. In addition to attempting to alter performance within the various aspects of social communication, interventions have also focused on increasing the use of prosocial behaviors, such as validating comments. This is based on the idea that typically developing children naturally use validating comments successfully in social interactions, while children with LI are less likely to utilize these types of comments when interacting with peers, leading to numerous social difficulties (Liiva & Cleave, 2005).

In that the current study focuses on validating comments, studies designed to teach children with typical language skills to produce these comments are of particular interest. Grusec, Davidov, and Lundell (2002) studied prosocial behaviors (i.e. validating comments) in depth and defined them as any voluntary, intentional action that produces a positive or beneficial outcome for the recipient. Actions included in this definition are: helping, sharing, consideration, concern and defending. Grusec et al. also extended their definition to include children's views of the following behaviors: using humor, asking about the other person, avoiding being mean, including the person in the group, ending a conflict, caring, sharing, hanging around the person, and trusting others by telling them secrets. These types of behaviors are important because children successfully become a part of the group by sharing in the group's interest and offering relevant statements to the ongoing interaction (Cillessen & Bellmore, 2002, p. 360). Prosocial behaviors have also been defined as behaviors that will make children more successful in social interactions. Examples of these behaviors include asking and answering questions, greetings, compliments, understanding others' perspectives, and imitating peers (Strain, Schwartz, & Bovey, 2008).

Bierman and Furman (1984) studied fifth and sixth graders with poor social skills. The children were poorly accepted by peers, as identified by sociometric ratings and observation. The children were divided into four treatment groups: (a) peer experience with social skills training, (b) peer experience only, (c) individual social skills training, or (d) no treatment. In the two coaching conditions (conditions a and c), children were trained for three conversational skills related to peer acceptance. It was anticipated that positive peer interactions would facilitate peer acceptance.

Conversational skills were the focus of intervention, specifically: (a) self-expression, or sharing information about oneself; (b) questioning, or asking others about themselves; and (c) leadership bids, or giving help, suggestions, invitations, and advice. All three of these objectives involved the production of validating comments. The children's conversation skills were assessed using structured dyadic conversation skill acquisition, observation of conversational behaviors in peer groups, and a written questionnaire measuring the children's cognitive understanding of these skills. The target children were randomly assigned to one of the four treatment groups in which they participated in cooperative activities with two familiar, gender-matched peers, who had received higher sociometric ratings. This allowed them opportunities to have positive social interactions with their peers.

The three target conversational skills were coached using instruction, rehearsal, and performance feedback techniques. The program provided for 10 half-hour sessions for six weeks. The training program yielded sustained increases in conversational skills in the coached children, as observed during a dyadic conversation and small group interactions with peers. Additionally, "six weeks after treatment, coached children were talking more with peers during lunch and received higher scores on the written measure of conversational skills" (Bierman & Furman, 1984, p. 158).

In 1986, Bierman extended her earlier work by examining the change in interaction among unpopular adolescents (target children) exhibiting poor social skills and their peer partners in role-play situations during a social skills training program. This particular study focused on the first two groups mentioned in the previous study (peer experience with social skills training and peer experience only).

A major focus of Bierman's follow-up study was evaluating the use of positive comments by the children being targeted in the study. The social skills training group was coached on the use of specific conversational skills when engaging in triadic cooperative activities, where a target child was matched with two non-target children. In the peer-experience condition, the children were directed in their activities but not coached in any way. During the second half of the treatment sessions, the children made videotapes of various natural interactions during the day. The first and last videotapes were analyzed to evaluate the acquisition of conversational skills. One of the predictions of the study was that social skills training would elicit positive responses from peers because training involved teaching children to identify and positively evaluate the target skills. Therefore, the author expected to see peers reinforcing the target behaviors. This hypothesis was confirmed when the children who received social skills training received more positive reinforcements from their peers than the children in the control group. Children who received coaching were also more positively responsive to their group members than the non-coached children.

Mize and Ladd (1990) examined a training program in which children were taught to use validating comments. The specific tasks included leading peers, asking questions of peers, making comments to peers, and supporting peers. Participants were 123 four- and five-year old children identified by sociometric ratings as liked or disliked. Specifically, they were children who had low sociometric status and were also low in classroom use of social skills. Children classified as *disliked* qualified for treatment. Training followed the instruction, rehearsal (e.g. role-playing), self-monitoring, and feedback protocol. For generalization, the participants were able to interact with two typical peers, during which interaction they were instructed to use validating comments. The authors also showed children videotapes of the children's play

sessions and asked the children to identify when they used their target skills and how their partners reacted to this. The trained children demonstrated a significant increase in the use of validating comments following the treatment, especially in comments and leads. However, despite this increase in skill, the trained children did not improve in their sociometric measures from pretest to posttest.

Decreasing the use of negative comments and behaviors. Social skills training may lead to increased use of prosocial behaviors (i.e. validating comments), but another related aspect that has not received as much attention is the suppression or decrease of negative behaviors. (Bierman, 1986; Bierman & Furman 1984; Bierman, Miller, & Stabb, 1987; Ladd 1981). Bierman et al. (1987) studied the effects of both negative prohibition and positive instruction in a social skills training program for "socially negative, peer-rejected boys" (p. 194). First, second, and third grade boys who received the most negative peer nominations of the 198 boys sampled for the study, as well as boys who demonstrated the highest levels of negative peer interactions were selected to participate in the study. The boys were randomly assigned to one of four treatment groups: (a) instructions and coaching in positive behaviors; (b) prohibition and response cost for negative behaviors; (c) combination of instruction and prohibition; and (d) no treatment. Target skills addressed in the instructions and coaching group included questioning others by asking for information, clarification, or an invitation; helping by giving support and providing suggestions; and sharing. In the prohibition group, the children were given rules to avoid arguing, fighting, and being mean (i.e. making negative comments). Treatment took place in 10 half-hour, small group play sessions. Treatment effects were assessed using observation and peer and teacher rating scales. Boys from the prohibition group engaged in fewer negative behaviors immediately and six weeks after treatment. The instructions and coaching group of

boys exhibited stable behavioral improvements. Boys who received the combined program demonstrated immediate post-treatment decreases in negative initiations, later decreases in negative peer responses, and stable positive peer interactions. Unfortunately, this study only included boys. It would be important to include girls in a future study, to provide a comparison of how girls respond to this type of treatment.

A different view on negative behaviors was presented by Nangle, Erdley, Carpenter, and Newman, (2002), who reviewed a plethora of social skills training literature. They found that many of the social skills training programs were based on the assumption that aggression and the expression of other negative behaviors result from a lack of skills needed to more competently negotiate conflict and influence peers. They asserted that teaching children appropriate communication, participation, cooperation, and validation or support skills resulted in gains in sociability and a reduction in the use of aggression. They also found that even in the absence of the direct targeting of aggressive behavior, the provision of more adaptive behavioral alternatives was expected to result in decreased use of aggressive behaviors.

In summary, the acquisition of appropriate social skills and suppression of negative behaviors is important for all children. Several social skills training programs have been designed to assist children who are at risk for social failure, and many of these programs have been successful in improving the peer interaction of target children (Asher, Parker, & Walker, 1996). However, as manifest by the present review of literature, there is limited research available on successful intervention programs dealing specifically with improving the social skills of children with LI, and even less is known about the efficacy of promoting the use of validating comments in social skills interventions.

Method

The purpose of the present study was to investigate the efficacy of a social skills training program to teach the use of validating comments to participants with LI. The effect of the program on the prevalence of negative comments made by the participants was also examined. This behavior was studied to examine the claim that gradual skill acquisition may lead to gradual decreases in negative behavior (Bierman, Stabb, & Miller, 1987). The performance of children with LI was compared to the performance of their typical peers during triadic interactions, taken before and after the intervention. Performance was also examined by tallying the number of validating comments on a session-by-session basis. The present study is an extension of previous work which was part of a larger project designed to examine the social skills of children with LI (Watson, 1999). In the original study, only half of the available sessions were analyzed. In the present study, the unanalyzed sessions and follow-up sessions were analyzed and combined with those previously examined.

Participants

Participants for the original study (Watson, 1999) were recruited from a public elementary school located in a suburb in the Midwest. Target participants were selected by the school speech-language pathologist from a sampling of potential participants with LI. Participation was based upon linguistic level and parental permission to participate. Four participants with LI, between ages 6 and 10 years, were identified for treatment. The four participants were randomly selected from a group of eight participants who qualified to participate in the treatment program. Three of the participants were in the same first grade classroom, and the fourth subject was in the fourth grade. Typically developing grade-matched

peers were randomly selected throughout the intervention to serve as play partners. A different pair of peer partners was used for each interaction, with each participant.

Children with LI. Children with LI met exclusion criteria for LI. The exclusion criteria mandated that the children must not present with: hearing impairment, articulation/motor speech impairment, neurological disorders, or behavioral disturbances. Participants with LI also met the following criteria, as verified by teacher report and available school records:

1. Placement in a mainstream classroom setting with speech-language pathology services provided on a pullout basis.
2. Performance at least one standard deviation below the mean on a standardized language test.
3. Typical visual and hearing status based on school district screenings.
4. Psychological evaluation ruling out a primary diagnosis of intellectual disability or pervasive developmental disorder.

Descriptive information summarizing age, grade, and test scores for the four participants is presented in Table 1.

Performance on sociometric measures. Several different measures were used to determine that the subjects with LI had below average social skills. A summary of the sociometric measures for each of the participants can be found in Appendix A. The first measure was a peer rating scale. This measurement provided a quantitative indication of peer acceptance (based on procedures used by Asher, 1985; Asher & Renshaw, 1981). Peer rating scales have been widely used to determine peer acceptance of children in a classroom or peer group (e.g, Asher & Hymel, 1986; Gresham & Nagle, 1980; Ladd, 1981; Oden & Asher, 1977).

Table 1

Descriptive Information on Participants with LI

Subject	Age	Grade	Gender	IQ Score	Expressive Language Score	Receptive Language Score
SLI 1	7:0	1	F	93	72[b]	62c
SLI 2	6:4	1	F	100	83[b]	83[c]
SLI 3	6:5	1	M	77[a]	1st percentile	4th percentile
SLI 4	9:4	4	F	82	5th percentile	3rd percentile

Note. Unless indicated, IQ scores are from the *Leiter International Performance Scale* (Leiter, 1984), and the expressive language and receptive language percentile scores are from the *Clinical Evaluation of Language Fundamentals-Revised* (Semel, Wiig, & Secord, 1987). Adapted from "The use of Positive Comments by Children with Specific Language Impairment During a Social Skills Intervention Program" by V. J. Watson, 1998, (Unpublished master's thesis), Brigham Young University, Provo, Utah.

[a] Composite IQ score from the *Stanford Binet Intelligence Scale-4th Ed*. (Thorndike, Hagen, & Sattler, 1986).
[b] Speaking quotient from the *Test of Language Develpment-2 Primary* (TOLD-2); (Hammill & Newcomer, 1988).
[c] Listening quotient from the TOLD-2 communication skills identified in the literature as enhancing peer interactions

Peer acceptance is a good indicator of social competence and social skillfulness because it incorporates the judgments of many individuals, with whom the child is associated (Cillessen & Bellmore, 2002). Children in each classroom containing one of the subjects with LI were presented with a list of all classmates and asked to rate how much they liked to play with each classmate on a scale of 1 to 3 (1 equated to "not at all" and 3 equated to "a lot"). A score was obtained for each student based on the mean of his/her fellow students' rankings.

A friendship nomination measure based on procedures used by Parker and Asher (1993) was used to determine whether subjects with LI had friends in the classroom and if those friendships were reciprocal. Children in each classroom with a participant with LI were asked to name their three best friends in the class. In addition, they were asked to name which of the three was their best friend. Ratings were then compared to determine the number of reciprocal friendships each participant had.

The *Williams and Asher Loneliness Scale* (WALS; Wentzel & Asher, 1992) was administered to each child to measure the quality of peer relationships. The scale consisted of 14 questions which focused on the child's feelings of loneliness and social dissatisfaction (e.g., "Are the kids at school friendly to you?"). Raw scores for each child were calculated based on a point scale for each of the 14 questions (yes = 1 point, sometimes = 2 points, and no = 3 points). A score of 3 always indicated more loneliness or dissatisfaction. A total score was calculated for each child with LI and compared to the mean for children with typical language skills established in the study by Fujiki et al. (1996).

AA (LI 1) had a sociometric rating several standard deviations below the mean, and no reciprocal friendships were reported. Interestingly, MD (LI 2) had a sociometric measure that was above the class average, and reported one reciprocal friendship. However, her WALS score

was more than two standard deviations above the mean. CS (LI 3) received a sociometric rating slightly below the class average, with no reciprocal friendships, and a WALS score falling almost 3 standard deviations above the mean. JH (LI 4) had a sociometric rating several standard deviations below the mean, no reciprocal friendships, and a WALS score that doubled that of the class average.

Ratings by teachers. For each participant, the scores they received on the Teacher Behavior Rating Scale (TBRS) were compared to a norming sample for gender and age-matched typical peers. This measure indicated that AA demonstrated behaviors of aggression and hostility. She also scored poorly on sociable behaviors and was rated high on solitary active and solitary passive withdrawal. MD's social profile was characterized by withdrawal, with high scores in three subtypes of withdrawal (solitary active, solitary passive, and reticent). Her teacher also indicated that MD had high ratings of anxious/fearful and anxious/distractible behavior. The behavior that stood out most with CS was that of aggression, specifically aggressive reactive behavior and overt aggression. He also received high ratings for solitary passive withdrawal, distractibility, and impulsive behavior. (Brinton, Fujiki, Montague, & Hanton, 2000). The social profile for JH revealed a number of difficulties. She received low scores for sociability and significantly higher scores for reticent-withdrawal and solitary passive withdrawal. She also displayed several anxious/distractible behaviors, including depression, distractibility, anxious/fearful, overt emotional display, and oversensitivity. She also exhibited high levels of emotional/impulsive behaviors, as well as certain types of hostile/aggressive behaviors (Fitzgerald, 1999).

Typically achieving Peers. Partners with typically developing language were selected to participate in weekly game sessions with the participants with LI. Partners were randomly selected from a group of children who met the following criteria:

1. Enrollment in a mainstream classroom setting.
2. Unremarkable academic performance and/or typical academic progress based on teacher report and school records.
3. No special services outside of the classroom.
4. Same gender and same grade as the corresponding target child.

Baseline and Follow-up Measure: Cooperative Learning Task

The focus of the present study was the production of validating comments by the participants before, during, and after participating in the social skills training program. The baseline data for this study were collected as follows: each of the four participants identified as having LI was observed in four 20-minute cooperative learning activities two to three months before beginning treatment. Cooperative learning activities are defined as "A variety of teaching methods in which students work in small groups to help one another learn academic content" (Brinton, Fujiki, & Higbee, 1998, p. 1194). The specific activities used involved triadic interactions where the participants with LI interacted with two gender- and grade-matched typically developing peers. Each triad was instructed to work together to perform specific tasks. These tasks included making an art collage, building a vehicle from Tinker Toys, constructing a periscope from a shoebox, and putting together a make believe animal using a milk jug. Children were assigned to one of three specific roles during three of the four activities. The expectations of each role were explained to the children. The *checker* monitored the time with a timer. The *leader* was in charge of directing the activity and keeping participants on task. The

materials manager was in charge of gathering the materials for the group. The fourth activity was carried out without assigning roles. All of the interactions were videotaped. The three follow-up activities were carried out in the same manner, except the first follow-up activity was conducted without assigning roles, instead of the final one.

Baseline measures of social behaviors were collected by randomly selecting three of the cooperative learning sessions for each of the four participants. Each activity was analyzed for the production of positive comments. The three follow-up cooperative learning sessions were analyzed for the production of both positive and negative comments. See Appendix B and Appendix C for specific guidelines on how these comments were analyzed.

Intervention Procedures

Two graduate students in communication disorders served as coaches in the intervention program. Each intervention session was planned jointly by the two clinicians to ensure consistency of treatment. The clinicians were trained prior to beginning the intervention implementation, and they met weekly for the duration of the project with the supervising professor. During this time, they would review videotapes of the treatment sessions to ensure treatment fidelity across sessions. The research professors reviewed the tapes to ensure that each participant received adequate and equal training in the targeted goals of the study, each week. The graduate clinicians were supervised by an onsite speech language pathologist with clinical certification.

The social skills training program replaced the participants' regular language intervention services. Three treatment goals were chosen for each participant based on areas of deficiency, as identified by observation and teacher report. The treatment goals were (a) increase successful

access to groups of peers in ongoing play, (b) increase cooperative play or work with peers, and (c) increase validating comments to peers in play or work.

The purpose of this study was to increase the use of validating comments and to examine whether the occurrence of negative behaviors decreased as a result of this increased skill. Research supporting the selection of these goals purports that children with LI tend to take minor roles in cooperative learning and contribute little to interactions. Children with LI often employ ineffective social strategies in interactions, such as non-responsiveness, irrelevance, and self-centeredness. As a result, these children often have difficulty accessing ongoing interactions (Brinton et al., 1997; Brinton, Fujiki, and Higbee, 1998; Fujiki et al., 1995; Timler, 2009).

The intervention program lasted 10 weeks, during which time, each of the four participants received four 15-minute sessions per week. The participants received a total of 40 intervention sessions, except for the fourth grade subject, who received twenty 30-minute sessions. The schedule for the intervention was similar to each child's regular language intervention program. The intervention program followed a specified design, with each day having a different focus. Each week, the first two sessions consisted of group instruction for the three first graders. For the fourth grader (LI 4), the instruction session occurred in one 30-minute session, where she met individually with the clinician. The purpose of these instructional sessions was to introduce, discuss, and rehearse accessing behaviors and cooperative play behaviors.

Target behaviors (e.g. validating comments) were introduced in a story format, where the clinician used the characters of the story to model the target behavior. The children were then asked to engage in a role play of the story with toys. The clinician provided the children with feedback during the role play. In later sessions, children practiced the target behaviors through

games such as *follow the leader*. The purpose of this game was to encourage the participants to pay attention to the actions of their peers in cooperative play.

The third session in the week provided each of the participants the opportunity to have play experiences with two typically developing, grade- and gender-matched peers in a game setting. Participants were instructed to practice the target behaviors taught in the previous sessions. During the fourth weekly session, participants met individually with one of the graduate student clinicians to watch the videotaped peer interactions. Clinicians provided the children with feedback on their performance during this session. However, LI 4 did not like watching herself on video; therefore during her feedback session only one or two examples of her using target skills and peers responding positively to her were shown.

During the feedback sessions, the child was shown video of three or four excerpts from the peer interaction in the previous session. The clinician and the participant discussed the participant's use of target behaviors and how peers responded to those behaviors. Following this, time was spent practicing behaviors in which the participant needed further assistance. This was done in the context of a game, similar to what was done in the peer interactions.

The fourth grade participant had a slightly different intervention design due to scheduling conflicts. As mentioned previously, it followed the same general pattern of the other children, except for the four sessions being condensed into two 30 minute sessions a week. The first session followed the protocol for the first two days of the first grade sessions. The second session consisted of a play session followed by a discussion session, as previously detailed.

This structure was supported by various researchers (e.g., Lo, Loe, & Cartledge, 2002; Mize, 2005; Nangle, Erdley, Carpenter, & Newman, 2002; Spence, 2003) as an effective method of teaching social skills. Timler (2005) claimed that assessment and intervention targeting social

communication needs to be conducted within "socially relevant situations and with partners that really count: the children's peers" (Timler et al., p.171). She further stated that an effective intervention method that has been studied is the use of small group training sessions. These sessions include three components: (a) teach new social communication behaviors, (b) practice these behaviors with peers during play, and (c) review play sessions with the child. Studies focusing on this intervention structure found positive changes in language and social skills. Timler and Vogler-Elias (2007) also suggested practicing social skills with peers *early and often*. These authors also suggested employing self-monitoring programs that allow children to monitor their behaviors or evaluate their performance.

Measures of Change in Comment Use during Intervention

Validating comment use measured by session. All intervention sessions were videotaped to allow for detailed analysis of intervention effectiveness. In the initial investigation of the validating comments intervention (Watson, 1999), alternating game sessions were examined. The sessions transcribed included weeks 1, 2, 4, 6, 8, and 10 for the first grade participants, and weeks 2, 4, 6, 9, and 10 for the fourth grade participant. These sessions were analyzed for positive comments, using the analysis system described in Appendix B. In the present study, the remaining weeks (3, 5, 7, & 9 for first grade participants, and 1, 3, 5, 7, & 8 for the fourth grade participant) were transcribed and analyzed for validating comments using the same system. The sessions were analyzed by following the transcript while viewing the recorded session, so that tone and context could be taken into account. It was hypothesized that by including these remaining weeks in the analysis, results would provide a more accurate assessment of the use of validating comments, as well as negative comments, by the participants.

Validating comment use compared with typical children. To provide an additional measure of performance, the validating comment analysis system (Appendix B) was used to analyze the production of validating comments among the typical peers during cooperative learning sessions before and after the intervention. These data were compared to the performance of the children with LI in the same cooperative learning sessions. Typical peers' performance in the weekly game sessions was analyzed for the production of positive comments, using the analysis system described in Appendix B. This was done to provide a comparison among the typical peers and the subjects with LI. None of the typical peers were specifically trained to use positive comments in these interactions, so their performance reflects their natural social behaviors. It was hypothesized that the typical peers would consistently use a higher density of validating comments than the subjects with LI, but that the gap between the typical peers and the subjects would decrease as the intervention progressed.

Negative comment use measured by session. Using an analysis system based on the work of Asher (1994), each of the weekly peer interaction sessions, as well as three follow-up sessions, was analyzed for the production of negative comments by both the subjects with LI and the typical peers. A detailed descriptive of this system is presented in Appendix C. It was hypothesized that, as the subjects with LI learned to use the more prosocial behavior of making validating comments in peer interactions, their production of negative comments would decrease. The typical peers' utterances were also analyzed to provide a means of comparison for the subjects' performance.

Reliability

Transcription. The researcher and another research assistant in the communication disorders department at Brigham Young University worked together to establish transcription

reliability. This was done by transcribing 10% of the intervention sessions that were previously transcribed by the researcher in the previous study. The transcripts that were transcribed by the current researchers were compared to the original transcripts for reliability. The supervising professor on the project provided instruction on how this was to be done. Inter-rater reliability was established using the formula A/N x 100, where A represented the total number of word agreements, and N represented the total number of words. Inter-rater reliability for transcription was determined to be 93%.

Coding. The researcher and a research assistant in the communication disorders department worked together to establish inter-rater reliability for validating comment and negative comment analysis. The formula used to determine coding reliability was (A/N X 100), where A represented the number of comments on which the raters agreed, and N represented the total number of comments coded within the session. Training was completed by jointly examining three transcripts from the intervention sessions for positive and negative comments. The two researchers then separately analyzed three additional transcripts and compared the results, yielding an 88% reliability rate.

As an added measure, the researcher and research assistant also established intra-rater reliability. This was done by reanalyzing 10% of the intervention sessions that had already been coded by the present researchers. The transcripts were compared, and the same formula (A/N X 100) was used to determine the reliability. This yielded 86% reliability. See Appendix B and Appendix C for a detailed description of how validating and negative comments were analyzed and coded.

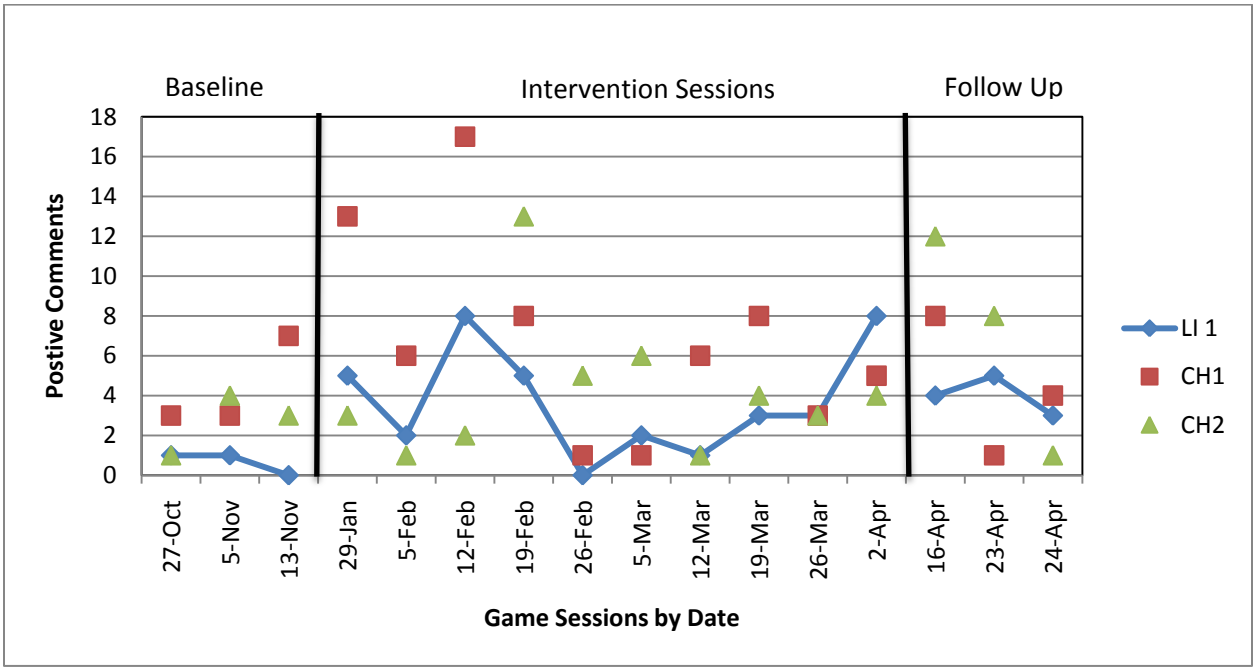
Results

Validating Comments

Baseline data (three cooperative learning activities) for each participant were analyzed according to the positive comment analysis (see Appendix B). The results of these analyses were used to establish pretreatment behavior. For the purposes of monitoring change in the use of these behaviors by each child during treatment, the number of positive (validating) comments was counted for each of the weekly peer game playing interactions. Three follow-up cooperative play sessions were also analyzed to determine generalization beyond treatment. For each child in the intervention, the type of positive comment is also presented, as well as the number of negative comments produced.

AA (LI 1). The number of validating comments produced by AA, as well as the peer partners with whom she interacted (denoted as CH1 and CH2), in baseline, during the intervention, and in the cooperative play follow-up sessions, is presented in Figure 1. The data for the weekly treatment sessions were taken from the interactions with two typically developing peers. Different peers were used for each of these interactions. The average length of the game sessions was 12 minutes, 47 seconds. AA produced few validating comments (2) during the three baseline measures. A significant increase was noted during the first week of intervention, where AA produced five positive comments on action, accounting for 15% of the total comments produced by the triad. AA demonstrated a fair amount of variability from week to week, but she consistently produced more positive comments during the intervention than during the baseline. By week four, AA produced 31% (five positive comments) of the 26 total positive comments produced by the triad. In the final week of intervention, AA produced a total of eight validating

Figure 1. Number of Validating Comments Produced per Triad (LI 1)



Note. These data are also presented in table form in Appendix D.

comments during the game session, contributing 47% of the comments made by the group. AA produced an average of 3.7 validating comments per game session. While she consistently produced fewer positive comments than her peers, AA did demonstrate a positive increase in her use of positive comments across the last five game sessions. During each of the three the follow-up cooperative play sessions, AA produced an average of four validating comments, which made up an average 30% of the validating comments generated by the triads. These results suggest that the intervention was effective for improving the number of positive comments AA used during peer interactions.

AA increased the variety of the types of positive comments she used during the intervention. During the baseline sessions, AA produced an offer to help and an offer of encouragement. In the first weekly game session, AA produced five positive comments on action. In the final game session, AA produced an offer of encouragement, two offers to help, one social acknowledgement, and four positive comments on action. During the follow-up cooperative play sessions, AA produced comments that fell into three categories (offer to help, social acknowledgement, and positive comment on action). A summary of the types of positive comments produced by AA during the baseline sessions, each game session, and the follow-up sessions, is displayed in Table 2.

MD (LI 2). MD production of positive comments, as well as those of her typical peers (denoted as CH 1 and CH 2), is displayed in Figure 2. In the baseline measures, she produced an average of three comments per activity. The average length of the game sessions, from which the treatment data was taken for MD, was 11 minutes, 48 seconds. During the first peer game session, MD again produced only three validating comments; however this made up 38% of the eight total comments produced by the group. The subject contributed nine positive comments

Table 2

Types of Positive Comments Produced by LI 1

Date	Personal compliment	Compliment on action	Offering encouragement	Offer to help	Social acknowledgement	Positive comment on action
27-Oct				1		
5-Nov			1			
13-Nov						
29-Jan						5
5-Feb		1		1		
12-Feb				1		7
19-Feb						5
26-Feb						
5-Mar				1		1
12-Mar						1
19-Mar				3		
26-Mar						3
2-Apr			1	2	1	4
16-Apr				2	1	1
23-Apr					2	3
24-Apr				1	2	

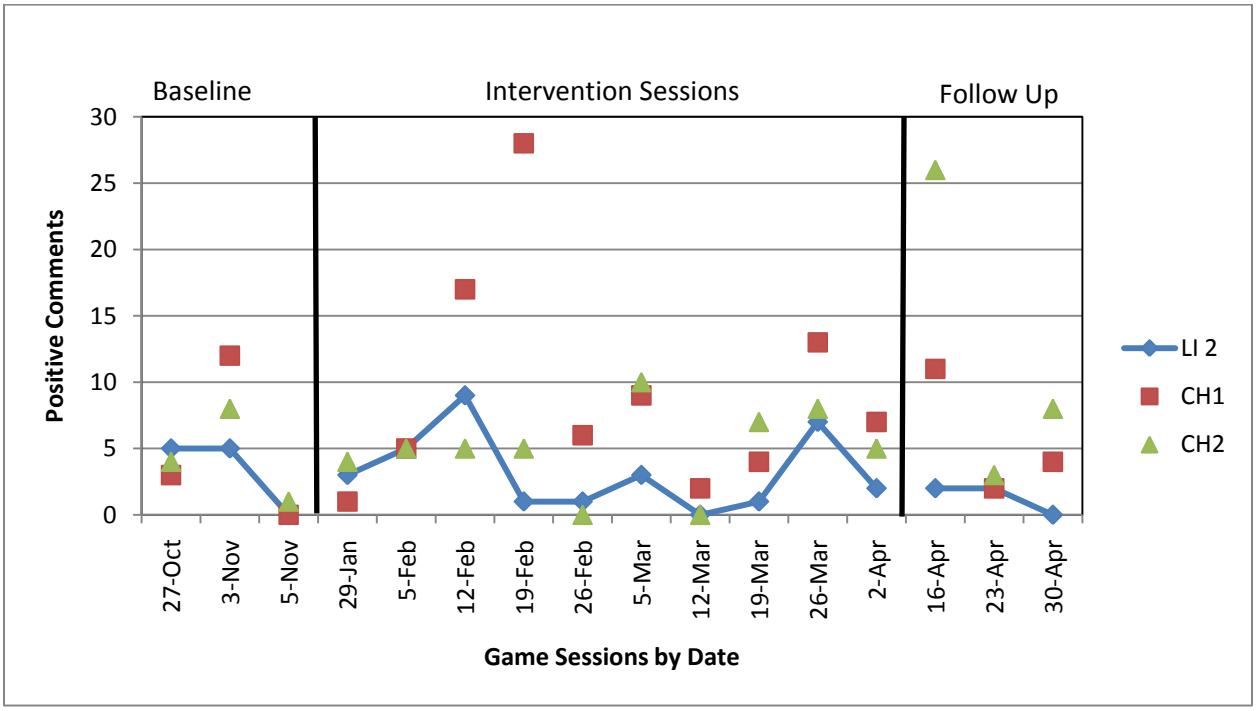
Note. Line breaks indicate baseline and follow-up sessions.

during the third weekly interaction (29% of the total comments produced by the group); however this increase was not maintained. In the final peer interaction, she only produced two positive comments, which accounted for 14% of the 14 positive comments produced by the group. During the intervention, MD produced an average of 3.2 positive comments per game session. In the follow-up sessions, MD produced an average of 1.3 validating comments per session, averaging 11% of the total comments produced by the groups. In the majority of the peer interaction sessions, as well as the follow-up sessions, MD consistently contributed the fewest number of validating comments to the interactions, as can be seen in Figure 2.

Consistent with her limited use of positive comments, MD showed little variation in the types of positive comments she produced during the intervention program. MD produced positive comments that fell into four categories (offer of encouragement, offer to help, social acknowledgement, and positive comment on action), over the three baseline sessions. During the first intervention session, MD produced two offers to help and one positive comment on action. Throughout the intervention, MD demonstrated a habit of producing mostly positive comments on action, and this behavior continued during the follow-up sessions. A summary of the types of positive comments produced by MD during baseline, treatment, and the follow-up sessions can be found in Table 3.

CS (LI 3). CS produced four offers to help during the baseline measures, therefore producing an average of 1.3 comments per session. During the first weekly peer interaction of the intervention program, CS produced three positive comments on action, which only accounted for 6% of the 49 positive comments generated by the triad. Halfway through the intervention, in week six, the subject produced four total validating comments, contributing 8% of the 50 comments produced by the group. Interestingly, during the final peer interaction (week ten), CS

Figure 2. Number of Validating Comments Produced per Triad (LI 2)



Note. These data are also presented in table form in Appendix D.

Table 3

Types of Positive Comments Produced by LI 2

Date	Personal compliment	Compliment on action	Offering encouragement	Offer to help	Social acknowledgement	Positive comment on action
27-Oct			1	3		1
3-Nov			1	3	1	
5-Nov						
29-Jan				2		1
5-Feb		3				
12-Feb				2		7
19-Feb						1
26-Feb						1
5-Mar						3
12-Mar						
19-Mar						1
26-Mar			1	1	1	4
2-Apr			2			
16-Apr						2
23-Apr				1		1
30-Apr						

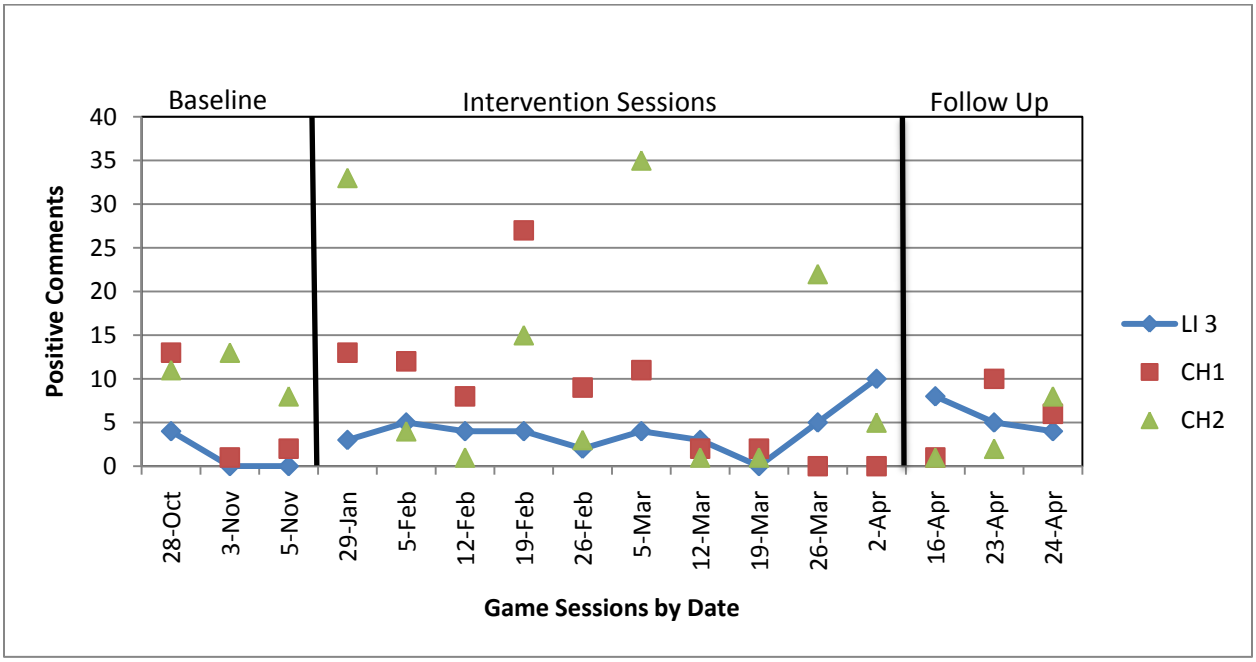
Note. Line breaks indicate baseline and follow-up data.

contributed 10 validating comments to the interaction, which made up 67% of the 15 comments produced by the triad. CS produced an average of four positive comments per game session. The average length of the game sessions for CS and his peers was 14 minutes, 27 seconds. During the three follow-up cooperative play sessions, CS produced an average of 5.7 positive comments per session, contributing an average of 44% of the total positive comments produced by the triad. These results are summarized in Figure 3.

The variation of positive comments produced by CS increased over the course of the intervention. For example, during baseline, CS only produced offers to help. In the second weekly game session, CS produced comments that fell into four categories (personal compliment, compliment on action, offer to help, and positive comment on action). In the final intervention game session, he produced comments that fell into all but one category. A summary of the types of positive comments produced by CS can be found in Table 4.

JH (LI 4). The results for JH and her peer partners (CH1 and CH2) are summarized in Figure 4. During the baseline measures, JH produced an average of 4.7 positive comments per activity. Due to scheduling conflicts, JH only participated in nine peer interactions over the course of intervention. During the first weekly peer interaction, JH demonstrated a significant increase in the use of validating comments when she contributed 15 positive comments, which made up 43% of the 35 total positive comments made by the group. She produced a total of 14 positive comments in the week four interaction, accounting for 78% of the 18 positive comments produced by the group. In the week eight interaction, JH produced 27 positive comments during the game session, which made up 71% of the 38 total positive comments made by the triad. JH produced an average of 10.6 positive comments per game session, consistently performing at a significantly higher level than what was measured during her baseline. The average length of

Figure 3. Number of Validating Comments Produced per Triad (LI 3)



Note. These data are also presented in table form in Appendix D.

Table 4

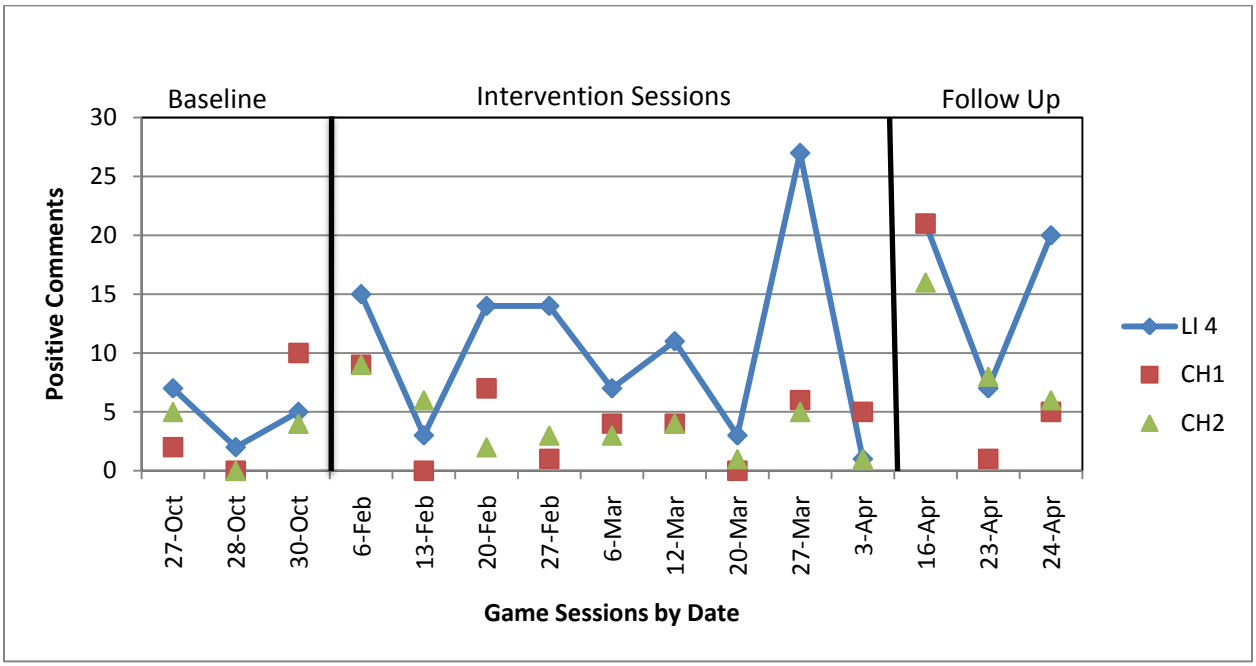
Types of Positive Comments Produced by LI 3

Date	Personal compliment	Compliment on action	Offering encouragement	Offer to help	Social acknowledgement	Positive comment on action
28-Oct				4		
3-Nov						
5-Nov						
29-Jan						3
5-Feb	1	2		1		1
12-Feb			1			3
19-Feb				1		3
26-Feb						2
5-Mar				1	1	2
12-Mar				2	1	
19-Mar						
26-Mar				1		4
2-Apr	1	1		1	4	3
16-Apr				2		6
23-Apr				1	1	3
24-Apr			1	2		1

Note. Line breaks indicate baseline and follow-up data.

the game sessions for LI 4 and her peers was 11 minutes, 50 seconds. LI 4 produced an average of 16 positive comments during each of the three follow-up sessions, contributing an average of 48% of the total comments produced by the triads. JH consistently used a wide variety of positive comments for the duration of the intervention. During the baseline sessions, she produced comments that fell into four different categories (compliment on action, offering encouragement, offer to help, and social acknowledgement). In the third weekly game session, JH produced comments that fell into each of the six categories. She produced comments that fell into all but one category during the eighth weekly interaction. Finally, in the follow-up sessions, JH produced comments that fell into four categories (personal compliment, offer to help, social acknowledgement, positive comment on action). A summary of the types of positive comments produced by JH can be found in Table 5.

Figure 4. Number of Validating Comments Produced Per Triad (LI 4)



Note. These data are also presented in table form in Appendix D.

Table 5

Types of Positive Comments Produced by LI 4

Date	Personal compliment	Compliment on action	Offering encouragement	Offer to help	Social acknowledgement	Positive comment on action
27-Oct		3		3	1	
28-Oct			1	1		
30-Oct				3	2	
6-Feb		1			1	13
13-Feb						3
20-Feb	2	2	3	1	4	2
27-Feb				1		13
6-Mar	1	4			2	
12-Mar		1				10
20-Mar					2	1
27-Mar	3	6		5	5	8
3-Apr			1			
16-Apr	1			1	7	12
23-Apr				2	1	4
24-Apr	1			3	7	9

Note. Line breaks indicate baseline and follow-up data.

Negative Comments

It was hypothesized that the subjects' use of positive comments would increase, while their use of negative comments would decrease over the course of treatment, based on the claim that gradual skill acquisition may lead to gradual decreases in negative behavior (Bierman, Stabb, & Miller, 1987). To determine this, each of the peer interactions, or game sessions, as well as the cooperative play follow-up sessions, was analyzed for the use of negative comments. The findings of this analysis were only significant for AA and CS. For AA, the correlation between increase of positive comments and decrease of negative comments during the intervention was statistically significant: $r_s = -.68$, $p = .0293$, two-tailed. However, this was not maintained in the follow-up sessions. For CS, the comparison between production of positive comments and production of negative comments was not statistically significant: $r_s = .05$, $p = .8768$, two-tailed. MD and JH did not produce enough negative comments to analyze statistically. Figures 5 and 6 provide details on the use of negative comments by AA and CS throughout the treatment. Appendix E provides a summary of the negative comments used by all participants and their typical peer partners in table form. The results for all participants are also summarized below.

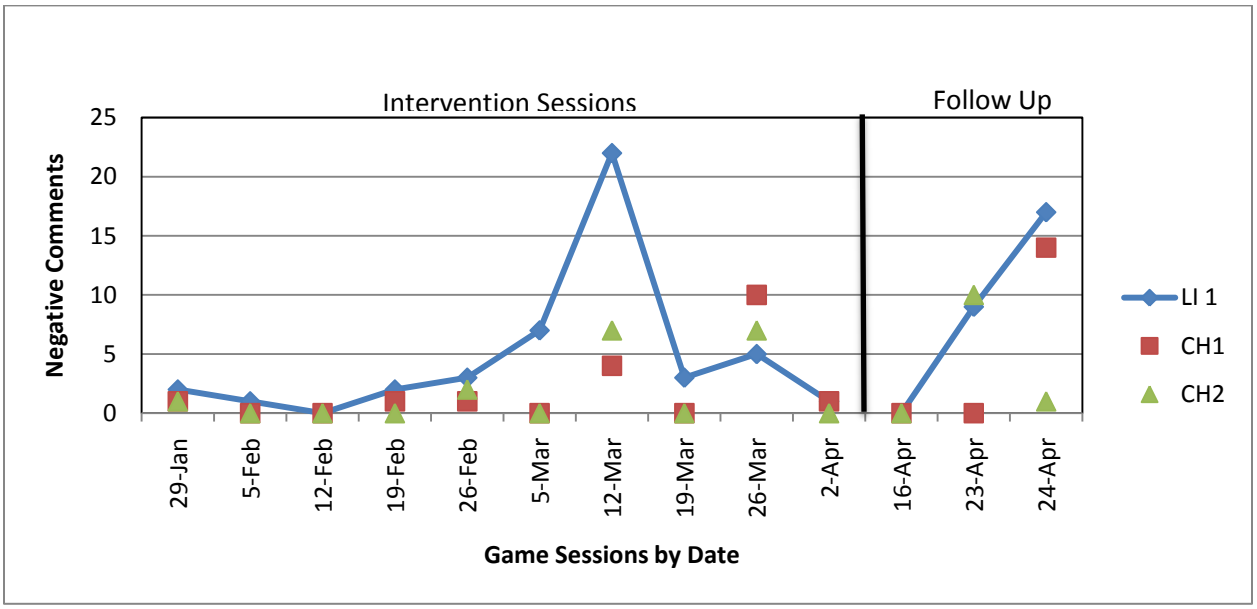
AA (LI 1). During the first game session, AA produced two negative comments, accounting for 50% of the negative comments the triad produced. In week six, AA produced seven negative comments, making up 100% of the total negative comments produced during the interaction. In the peer interaction in week seven, AA produced 22 negative comments, which made up 67% of the total negative comments produced during this peer interaction. In the final weekly peer interaction, week 10, AA only produced one negative comment; however only two

negative comments were made during the entire interaction. AA produced an average of 4.1 negative comments per game session. AA produced no negative comments during the first follow up session. During the following two cooperative play sessions, however, AA produced an average of 13 negative comments, accounting for an average of 50% of the negative comments produced by the triads in these interactions. These results, along with a display of the negative comments produced by the typical peers with whom AA interacted, are summarized in Figure 5.

MD (LI 2). MD produced a total of three negative comments during the entire intervention program, which occurred during the third weekly interaction. This accounted for 21% of the 14 negative comments produced by the triad during this same interaction. The different sets of typical peer partners with whom MD interacted each week did generate negative comments, resulting in disputes amongst themselves, but they rarely involved MD. During the follow-up cooperative play sessions, MD produced one negative comment during the first follow-up session, but none in the following weeks. However, her peers did use negative comments in each of the three sessions. A summary of this can be found in Table 15 of Appendix E.

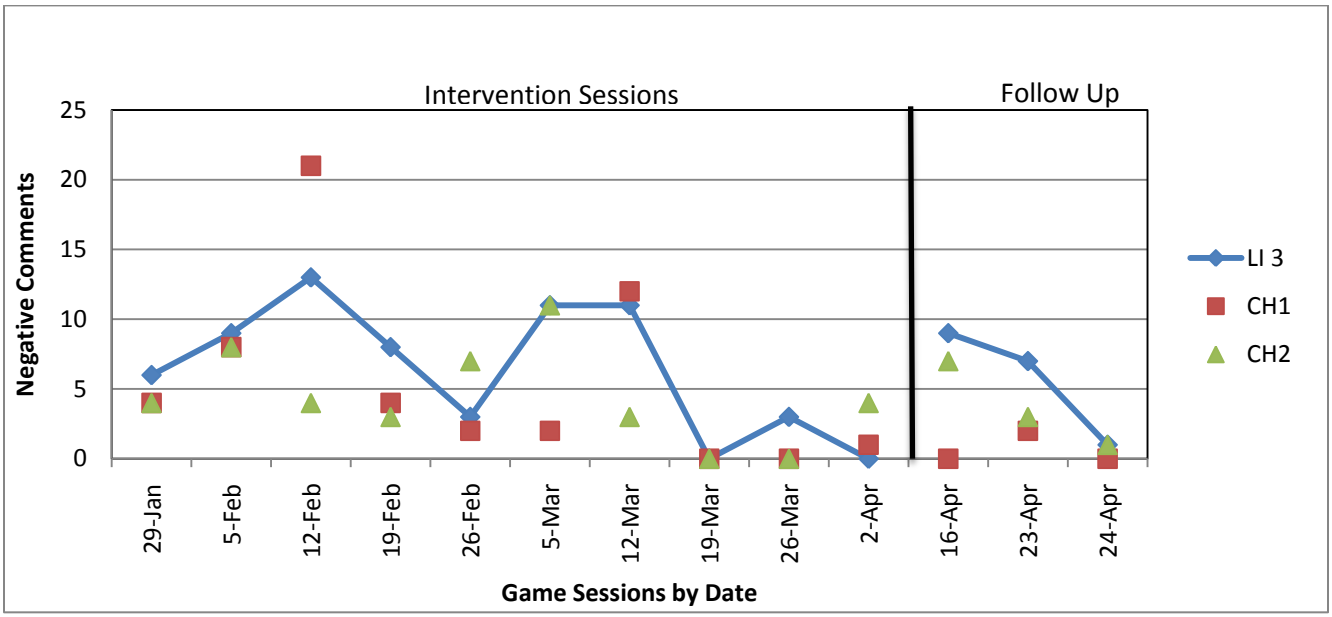
CS (LI 3). During the first game session, CS produced six negative comments, contributing 43% of the negative comments produced by the group. CS produced 13 negative comments during the third weekly interaction. There were 38 total negative comments produced by the peer group in the third weekly interaction, with CS producing 34% of those comments. The subject produced no negative comments during the week eight interaction. In fact, no negative comments were produced among the triad during this game session. However, CS was

Figure 5. Total Number of Negative Comments Produced per Triad (LI 1)



Note. These data are also presented in table form in Appendix E.

Figure 6. Number of Negative Comments Produced per Triad (LI 3)



Note. These data are also presented in table form in Appendix E.

the only child to produce negative comments (3) during the week nine peer interaction. During the tenth game session, the peers produced a total of five negative comments during the interaction, but CS did not contribute any negative comments. CS produced an average of 6.4 negative comments per game session. CS produced an average of 5.7 negative comments per session during the follow-up cooperative play sessions. These results are summarized in Figure 6.

JH (LI 4). JH only produced one negative comment during the intervention, which occurred during the fifth weekly peer interaction. During this same session, only one additional negative comment was made by a peer in the triad. Overall, the typical peers with whom she interacted during these game sessions did not produce many, if any negative comments. However, during one of the cooperative play follow-up sessions, JH demonstrated a marked increase in the use of negative comments.

While no negative comments were produced during the first follow up-session, JH produced 14 negative comments during the second follow-up session, accounting for 40% of the negative comments produced among the group. In third follow-up session, JH produced five negative comments, which made of 55% of the negative comments produced among the triad. A summary of this can be found in Table 17 of Appendix E.

Discussion

The purpose of the present study was to analyze the performance of four children with LI who were enrolled in a social skills training program. Other studies have shown that social skills training programs are effective in enhancing social skills in children who are deficient in this area because of LI, attention deficit disorder, and emotional or behavioral disorders, as well as among other at-risk groups of children (Mize & Ladd, 1990). For example, Nangle, Erdley, Carpenter, and Newman, (2002) found that teaching children appropriate communication, participation, cooperation, and validation or support skills resulted in gains in sociability and a reduction in the use of aggression. In the present study, an intervention to improve the use of positive comments was delivered to four children with LI. Using an analysis system designed specifically for this project, the children's behavior was examined for the use of positive and negative comments in peer interactions. Change was monitored across ten triadic peer interactions (nine for LI 4). Baseline and follow-up measures were also collected.

This study sought to answer three questions: (a) What was the effect of the social skills training program on the quantity of validating comments produced by children with LI? (b) How did the production of validating comments by children with LI compare with that of their typical peers before and after the intervention? and (c) How did the production of negative comments by children with LI compare with that of their typical peers over the course of the intervention? The training program produced an increase in the use of validating comments produced in three of the four participants (AA, CS, & JH). Three of the four participants (AA, MD, and CS) consistently used fewer validating comments than their typical peers for the duration of the study, with AA and CS showing individual improvement in their use of validating comments across the intervention. JH was the only participant to repeatedly produce more

validating comments than her typical peers during the intervention, while also demonstrating improvement in the use of this prosocial behavior. AA and CS tended to use a greater amount of negative comments during the intervention program than their typical peers, while CS and JH rarely used negative comments when interacting with their peers. Interestingly, AA, CS, and JH also maintained the progress made as a result of the treatment, as demonstrated by the three follow-up activities. Although this intervention did prove to be successful for three of the four participants, there are certain variables and limitations worth discussing.

Discussion by Participant

AA (LI 1). Although AA's use of positive comments improved as a result of the intervention, her use of negative comments remained relatively constant over the course of intervention. Some decrease in use of negative comments was noted as her use of positive comments increased, however, her use of negative comments increased in the follow-up sessions. Overall, AA also consistently used more negative comments during the weekly interactions and cooperative play follow-up sessions, than did her peers. This finding appears to be consistent with her high ratings of aggressive behavior, as indicated by her TBRS scores.

There were instances when AA's mood affected performance during the game sessions. For example, during week seven, AA only produced one positive comment, while she produced 22 negative comments. In this interaction, her's turn was bypassed by one of the other children, and after this incident, AA was upset for the remainder of the interaction. This reaction is not uncommon in children. It has been documented that being in a good mood tends to foster prosocial responding in children of all ages (Cialdini, Kenrick, & Baumann, 1982; Isen, 1970; Moore, Underwood, & Rosenhan, 1973, as cited in Grusec et al., 2002). A good mood also increases the likelihood that other positive thoughts and associations will be generated in

response to subsequent events. As a result, individuals in a good mood will view prosocial opportunities more favorably than those in a neutral or negative mood and will react more positively to the situation (Carlson, Charlin, & Miller, 1988, as cited in Grusec et al., 2002). This variable is difficult to control, but it is an important consideration when administering social skills training, as it does affect how the child will act.

MD (LI 2). Little change was noted in the use of positive comments by MD over the course of the intervention. Because her use of positive comments hovered closely to her baseline throughout the intervention, it was determined that the intervention was not successful in increasing her use of positive comments. She also invariably produced fewer comments than her peers during the weekly interactions. Overall, MD did not engage with her peers as frequently as the other participants. For example, in instances where she received a compliment from a peer, she did not respond to it. When the peers engaged in disputes, she did not participate. She actually contributed very little to the overall interactions and demonstrated a preference for working alone in activities that were intended to be group-oriented. As indicated by her TBRS scores, MD demonstrated high levels of withdrawal, which is characteristic of many children with LI.

Fujiki, Brinton, Morgan, and Hart (1999) found that children with LI scored significantly higher on TBRS ratings for measures of withdrawal, especially reticent withdrawal. Consistent with this interpretation, Table 2 in Appendix A shows that MD had a significantly higher WALS score than her classmates, indicating significant feelings of loneliness. It was also found that MD only had 1 reciprocal friend in her class. Overall, MD contributed very little to the weekly peer interactions. Rubin, Burgess, and Coplan (2002) proposed, "withdrawn children are socially deferent, anxious, lonely, rejected and insecure in the company of peers" (p. 345).

Therefore, it is possible that MD's lack of success may have been related to her levels of withdrawal. Withdrawn children may perceive themselves as intrinsically flawed in their interpersonal relationships and social skills. Withdrawal can potentially limit opportunities for social growth (Rubin, 1982; Rubin & Mills, 1988; Younger & Daniels, 1992). Shy and withdrawn children are likely to feel socially wary and anxious in situations with unfamiliar peers because of their negative self-regard. These negative feelings tend to stem from lack of success when attempting to interact with peers.

Reticent children are more likely than their typical peers to report feeling embarrassed in situations with unfamiliar peers. To cope with stressful social situations, these children will often employ avoidant coping strategies to avoid conflict (Burgess, Wojslawowicz, Rubin, Rose-Kransor, and Booth-LaForce, 2006). Because MD did not appear to benefit from this intervention, it would be worth investigating this treatment with highly withdrawn children to determine if they require particular modifications to fully benefit from social skills training.

CS (LI 3). CS demonstrated an increase in his use of positive comments and maintained this increase, as was demonstrated in the follow-up sessions. While his personal performance in the use of positive comments did improve, he did not produce more positive comments than his peers in any session. In fact, CS often engaged in disputes with his peers during the weekly peer interactions of the intervention program. His teacher indicated that this behavior was typical of CS, and it was reported that he often engaged in fights with his brother while at school. When CS was not initiating arguments among his peers, he was often the subject of the dispute. For example, during the second weekly interaction, of the 16 negative comments produced by the two peers, 12 were directed to CS or were about CS. CS's behavior differed drastically from that of the other three children. Interestingly, a decrease in the use of negative comments by CS was

noted after the seventh peer interaction. To this point, CS produced an average of 6.1 negative comments per session. During the final three game sessions, he averaged 1 negative comment per session. However, his use of negative comments increased again during the follow-up sessions. It was postulated that this may have been related to his aggressive behavior, as indicated by his TBRS scores. It may have also been related to gender.

Aggressive children are more likely than nonaggressive children to attribute blame to other children or react with hostility when faced with a challenging social situation. These children also expect the hostility to be reciprocated, resulting in negative peer interactions (Burgess et al., 2006; Dodge et al., 2003). There is documentation that boys and girls manifest aggression differently and have different strategies for handling conflict. Findings from observational studies have indicated that girls are less likely than boys to express angry feelings (Fabes & Eisenberg, 1992; Underwood, et al., 1999). Girls are more likely to use more prosocial, relationship-oriented strategies, whereas boys are more likely to employ self-centered and assertive strategies when handling conflict (Miller, Danaher, & Forbes, 1986; Rose & Asher, 1999). Further evidence supports the idea that differences in emotion regulation between the two sexes interact with sociometric status. For example, Walter and LaFreniere (2000) found that girls' anger was negatively related to peer rejection, whereas boys' anger was positively related to peer rejection. Studies examining the social information processing model have found that aggressive boys are more likely to attribute external blame than aggressive girls and that boys report more angry reactions than girls (Burgess et al.; Dodge et al.). However, Crick and Grotpeter (as cited in Nangle et al., 2002) found that girls use a different type of aggression--relational aggression. This includes gossip, exclusion, and threats to withdraw friendship. They claimed that if these behaviors are included in the definition of aggression there is less of a

discrepancy between boys and girls. Fischio reported on a study by Hart, Nelson, and Robinson (2006), where they defined relational aggression as harming others through purposeful manipulation and damage to relationships.

JH (LI 4). JH demonstrated the greatest improvement in her use of positive comments over the course of the intervention and did not demonstrate a habit of using negative comments. Actually, JH reliably produced more positive comments than her peers across the weekly interactions. The follow-up data for JH provided interesting information. She appeared to maintain the progress made during the weekly interactions; however she used significantly more negative comments during one of the follow-up sessions than during any of the treatment sessions. These outcomes may be explained by the different peer groups used each week or the age of JH.

Because this intervention was designed such that different peer groups were used in each weekly interaction, there were several instances in which the makeup of the peer group influenced the performance of the participants. Battistich (2003) claimed that problems encountered with peers are not due solely to deficits in the child's interpersonal skills, but to characteristics of the peer group as well. This may help explain the findings with JH. As previously mentioned, she did not use negative comments during the intervention; however, in one of the follow-up sessions, she used a significant number of negative comments during the interaction. Observation of this session suggested that the most likely reason for this is that her performance was influenced by the peer dynamics of this group. One of the peers in this particular interaction (CH2) made several demeaning comments to JH and expressed frustration toward her, while the other peer partner remained quiet for most of the session. JH and CH2

engaged in several disputes during this interaction, accounting for the majority of the negative comments produced by both children.

It is likely that this factor might explain some of the variability in production of positive comments from week to week, as exhibited by each of the subjects throughout the intervention. While this is an important component for generalization, a future study utilizing the same typical peers throughout the intervention may be revealing. It seems likely that if the subjects had opportunities to develop relationships with typical peers, they might be more inclined to use prosocial behaviors. This idea is supported by Burgess et al. (2006), who claim that, in social situations involving mutual friends, children are more likely to use conciliatory strategies when faced with conflict.

Overall, this intervention appeared to be highly successful for JH. In part, this success may be related to her age. A meta-analysis reported by Eisenberg and Fabes (1998) found that, overall, prosocial behavior increases with age. This is due in part to the fact that children have a great deal to learn about prosocial behaviors and how to appropriately express them. Further, Underwood, et al. (1999) found, in a sample of children (ages 8, 10, and 12 years old), that outward expressions of anger decreased with age. Therefore, it is possible that JH was at an age that was more optimal for learning these prosocial behaviors than that of the other three subjects studied.

Limitations and Suggestions for Future Research

There were several limitations of the present study that merit discussion. Because the participants were randomly selected, gender and personality type were not controlled. This intervention may be particularly helpful for aggressive children with poor social skills, if studied in greater depth. The two aggressive children in this study (AA and CS) appeared to respond

differently to this intervention than the other participants, suggesting that a modified form of this intervention may be more helpful. Specifically, if aggressive children are taught to replace their negative behaviors with positive behaviors, as was done by Bierman et al. (1987), they may be better able to hold onto these newly learned prosocial skills.

Because CS was the only male in the study, and he used the highest amount of negative comments throughout the intervention, it could be helpful to design a study that compares how boys and girls respond to this type of intervention. At this point, it is unclear whether gender contributed to the outcome of the study, so it would be advantageous to study this variable further.

The findings with CS point out another limitation in the present study. CS started to show greater improvement during the last few weeks of treatment, as noted by the increase in positive comment use and decrease in negative comment use. Unfortunately, after three weeks of this trend, the intervention ended. While he appeared to maintain some improvement in the follow-up sessions, it is likely that he would have demonstrated even greater improvement if the intervention had continued for a longer period of time.

Increasing the length of the intervention program may prove to be helpful in increasing its success in the future. This particular program lasted for 10 weeks. Increasing the length of the intervention would provide children with more opportunities to learn, stabilize, and feel comfortable using these newly learned skills. In this particular study, three of the participants, including AA, CS, and JH, started showing greater improvement during the last few weeks of treatment. It seems that, if the intervention had lasted longer, they may have produced more stable positive comment use. Interestingly, many known intervention studies range in length from 6-12 weeks (i.e. Adams, 2001; Hyter, et al., 2001; Klecan-Aker, 1993; Richardson &

Klecan-Aker, 2000; Swanson, Fey, Mills, & Hood, 2005). Therefore, the present study falls at the higher end of that range. Interestingly, one study that went on for six months reported that improvement was noted by both parents and teachers of the subjects during and after the intervention (Bedrosian & Willis, 1987). Therefore, it would be worth examining the effects of a longer intervention, since that currently appears to be a less common trend.

Conclusions

This study provides a description of a social skills intervention program that showed promise, but there are limitations in its application, as has been discussed. Addressing these limitations in future studies could prove to be highly valuable in providing children with LI with successful social strategies for the purpose of improving peer interactions. Despite the individual variability of each of the participants, the intervention appeared to be successful for three of the four participants. Of all of the variables and limitations discussed, it seems likely that if the treatment had been allowed to continue on for a longer period of time, the participants would have showed greater, more long term stability in the use of their newly acquired skills. This seems likely because the participants showed the most improvement towards the end of the intervention program.

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Appendix A: Sociometric Ratings

Table 6

Results of sociometric measures for LI 1

Measures	Subject score	M	SD
Sociometric rating	1.29	2.19	.29
Reciprocal friendship	0	NA	NA
WALS	21	17.8	3.08

Note. M and SD refer to class means and class standard deviations. Adapted from "Effectiveness of social skills intervention in improving peer acceptance of children with specific language impairment" by J. K. Pearson, 1998, (Unpublished master's thesis) Brigham Young University, Provo, Utah.

Table 7

Results of sociometric measures for LI 2

Measures	Subject Score	M	SD
Sociometric rating	2.29	2.19	.29
Reciprocal friendship	1	NA	NA
WALS	24	17.8	3.08

Note. M and SD refer to class means and class standard deviations. Adapted from "Effectiveness of social skills intervention in improving peer acceptance of children with specific language impairment" by J. K. Pearson, 1998, (Unpublished master's thesis) Brigham Young University, Provo, Utah.

Table 8

Results of sociometric measures for LI 3

Measures	Subject Score	M	SD
Sociometric rating	2.18	2.19	.29
Reciprocal friendship	0	NA	NA
WALS	25	17.8	3.08

Note. M and SD refer to class means and class standard deviations. Adapted from "Effectiveness of social skills intervention in improving peer acceptance of children with specific language impairment" by J. K. Pearson, 1998, (Unpublished master's thesis) Brigham Young University, Provo, Utah.

Table 9

Results of sociometric measures for LI 4

Measures	Subject score	M	SD
Sociometric rating	1.74	2.11	.37
Reciprocal friendship	0	NA	NA
WALS	34	17.8	3.08

Note. M and SD refer to class means and class standard deviations. Adapted from "Effectiveness of social skills intervention in improving peer acceptance of children with specific language impairment" by J. K. Pearson, 1998, (Unpublished master's thesis) Brigham Young University, Provo, Utah.

Appendix B: Conventions for Identifying Positive Comments

1. Personal Compliment [PC] (positive comment on personal attributes)

a. Include comments such as:

you're pretty
you're fun
I like your dress
good shoes
you're good at soccer
You're lucky

b. Do not include comments such as:

You're funny
You're silly
You are being silly
You're crazy

2. Compliment on Action [CA]

a. Include utterances such as:

you made it
good job
that was a good one
you made it in
nice catch
that's a good idea
that was a fun game
You're gonna win
Lucky spin
Lucky number
I love that game

b. Do not include comments such as:

This is easy

3. Offering Encouragement [OE]

a. An utterance which contains the word "try" (you try Bob, try again, try it this time) is coded as OE. However, if the word "try" is used by itself, it is considered ambiguous and the utterance is not coded.

b. An utterance containing negative words such as "no" or "wrong" is not coded.

c. Include utterances such as:

you almost made it
good try
I hope you don't get that, cause then you'll loose
keep going
do that again

d. Comments which offer consolation are coded as OE

Sub: I lost.
Ch1: it don't matter
Sub: I lost my turn again
Ch1: I always lose a turn also.
Ch1: I'm gonna lose.
Sub: It's okay.

4. Offer to Help [OH]

a. An other to help must refer to a joint activity or another's activity.
b. "Here" or "There" + a positive action is coded as an offer to help. However, if "here" is used as a request ("Here give it to me"), the utterance is not coded.
c. Commands or directives are not coded as offer to help.
d. If the offer is verbally disputed, it is not coded.
e. Include utterances such as:

here I can spin for you
I'll get the ants
I'll put the cards out
There's (Here's) a card
You can be green (gives partner a game piece)
Here Bob

5. Social Acknowledgements [SA]

a. Please is not coded as a social acknowledgment.
b. Included utterances such as:

thank you
I'm sorry
Are you okay?
You're welcome
Hi Bob

6. Positive Comment on Action [PCA]

a. A positive comment on action must be related to the game context. Comments on other topics may be noted but are not acknowledged as PCA.
b. Game regulations or discussion of rules is not considered a positive comment. If a comment contains the words "have to" or "gotta" or "supposed to" it is considered game regulation and is not coded.
c. If a positive comment is made about another player's move within 3 verbal turns of the move, it is coded as PCA. Include utterances such as:

You got a six
(You) (can) get a head
You got purple
(You) got six again
Put in two

[Unintelligible utterances or laughing (0 [=! laughs]) do not count as a turn. Overlapped utterances are counted as separate turns.]

d. Commands such as "go" are not considered a positive comment because it is a direct command. However, other comments regarding another player's turn are considered a positive comment. A comment such as “you go first, I go second, he goes last” is considered game regulation as is not coded. Include utterances such as:

    It’s your turn
    You can go first
    It’s still your turn
    You can be in front

e. Shortened version of a PCA are coded.

    Three
    Line
    Again
    Another
    Purple

    Ch1: [% spins] Lucky <number> [>].
    Sub: <number> [<]. (Code this utterance)

f. If "no" or other negative words (never, none, wrong, don't) are used during an utterance that utterance is not coded as positive comment.
g. Comparisons are coded as a positive comment if said with neutral inflection and is not a complaint.

    You’re one ahead of me
    I'm with you
    You're with me
    You are tied with me [Do not code: “I’m tied with him” or “Me and Bob are tied”]
    You guys are the same

h. If a PCA or other comments are disputed, all comments on the same topic as the original PCA or comment are not coded. A dispute is noted by increased volume and pitch, use of a negative word (no, stop, etc.), or the dispute is used to regulate the actions of another player.
i. Counting is not coded as a PCA
j. Comments about location or game status, such as “you are right here" or "you have two left," are not coded.
k. An utterance containing the phrase “if you want to” is not coded.
l. Comments that point out a mistake, such as "you went a different way" "you just missed the ladder" or "you passed six," are not coded.
m. Identification of game penalties, "loose a turn" "take one out" "go back" are not coded.

7. General
    a. An utterance that is a direct imitation by the same speaker is only coded once. If subsequent utterances are changed in any way, the utterance is coded.
    b. Intonation can override above conventions. Utterances said with a negative or whiny intonation are not coded.
    c. An utterance must be directed to a specific partner or the group to be coded. An utterance which refers to another partner in the third person is not coded. Utterances containing first person (singular or plural) pronouns are coded.
    d. Ambiguous utterance (unclear intentions or meaning by the speaker) such as a name ("Bob") or exclamations ("holy moly", "great", "oh yeah") are not coded.
    e. An utterance that is interrupted or trails off is not coded.
    f. Utterances containing "Let's" are not coded.
    g. Questions or responses to questions are not coded as PCA.

(Watson, 1999)

Appendix C: Negative Comments

Rejection can come in many forms (Asher, 1994):

- Overt aggression (OA)
  - Physical or verbal aggression
  - Insults: “Cheater” “You brat!”
  - Mocking
  - Aversive noises (making an annoying noise in your face)
  - Damaging a possession
  - Gestural aggression
  - Reminisce (a child brings up a past rejection to another child "Hey Bill, remember that time when kids put sand in your lunch?")

- Denial of access--denied access to other persons (DA)
  - To help
  - To resources: “you can’t have them all”
  - To information
  - Denial of person’s idea
  - Given less desirable resources (“you get broken cookie”)
  - Removal of peer (two kids are playing, someone takes one of the kids away)

- Exclusion or termination (sends you away or leaves you or ignores you) (EX)
  - Expresses dislike
  - Sends you away

- Moral disapproval (MD)
  - Blaming a child for something
  - Moral disapproval
    - “You cheated!”
    - “He isn’t playing right”
    - “He’s using my tree”
  - Predicting negative outcomes (Telling someone that something bad will happen because of what you have done)
  - Telling someone to stop doing something
    - “Stop doing that”
    - “Give him that back”

Involving a third party (child involves another child)
Child relays a negative message (NM)
Child tells another child something negative that is clearly meant to be over heard
Praising the rejecter (one kid rejects a child and another child praises the rejecter)
Telling an authority
"Mrs. Howe, he won't give me the pants"
"I'll tell Mrs. Howe"
"Teacher"
"Cole won't give us the thing back"
"Oh I'm telling Mrs. Howe

A dispute is noted by increased volume and pitch, use of a negative word (no, stop, etc.), or the dispute is used to regulate the actions of another player. Allow for one correction in misunderstandings; if argument persists beyond that, it becomes a dispute. Tone also indicates dispute. (DP)

"Don't do that"
"You took that away from me"
"You can't do that"

Complaints: Expressing dislike or disinterest with the situation; if tone indicates negative message (i.e. whiny)
"This is taking forever"
"I don't want to play this game anymore"
"I want to go back"
"I can't do this"

Refuse to participate:
"I'm not gonna pick those cards up"

Appendix D: Summary of Positive Comments per Triad

Table 10

Summary of Positive Comments Produced per Triad (LI 1)

Date	LI 1	CH1	CH2
27-Oct	1	3	1
5-Nov	1	3	4
13-Nov	0	7	3
29-Jan	5	13	3
5-Feb	2	6	1
12-Feb	8	17	2
19-Feb	5	8	13
26-Feb	0	1	5
5-Mar	2	1	6
12-Mar	1	6	1
19-Mar	3	8	4
26-Mar	3	3	3
2-Apr	8	5	4
16-Apr	4	8	12
23-Apr	5	1	8
24-Apr	3	4	1

Note. Line breaks indicate baseline and follow-up sessions.

Table 11

Summary of Positive Comments Produced per Triad (LI 2)

Date	LI 2	CH1	CH2
27-Oct	5	3	4
3-Nov	5	12	8
5-Nov	0	0	1
29-Jan	3	1	4
5-Feb	5	5	5
12-Feb	9	17	5
19-Feb	1	28	5
26-Feb	1	6	0
5-Mar	3	9	10
12-Mar	0	2	0
19-Mar	1	4	7
26-Mar	7	13	8
2-Apr	2	7	5
16-Apr	2	11	26
23-Apr	2	2	3
30-Apr	0	4	8

Note. Line breaks indicate baseline and follow-up sessions.

Table 12

Summary of Positive Comments Produced per Triad (LI 3)

Date	LI 3	CH1	CH2
28-Oct	4	13	11
3-Nov	0	1	13
5-Nov	0	2	8
29-Jan	3	13	33
5-Feb	5	12	4
12-Feb	4	8	1
19-Feb	4	27	15
26-Feb	2	9	3
5-Mar	4	11	35
12-Mar	3	2	1
19-Mar	0	2	1
26-Mar	5	0	22
2-Apr	10	0	5
16-Apr	8	1	1
23-Apr	5	10	2
24-Apr	4	6	8

Note. Line breaks indicate baseline and follow-up sessions.

Table 13

Summary of Positive Comments Produced per Triad (LI 4)

Date	LI 4	CH1	CH2
27-Oct	7	2	5
28-Oct	2	0	0
30-Oct	5	10	4
6-Feb	15	9	9
13-Feb	3	0	6
20-Feb	14	7	2
27-Feb	14	1	3
6-Mar	7	4	3
12-Mar	11	4	4
20-Mar	3	0	1
27-Mar	27	6	5
3-Apr	1	5	1
16-Apr	21	21	16
23-Apr	7	1	8
24-Apr	20	5	6

Note. Line breaks indicate baseline and follow-up sessions.

Appendix E: Summary of Negative Comments Produced per Triad

Table 14

Summary of Negative Comments Produced per Triad (LI 1)

Date	LI 1	CH1	CH2
29-Jan	2	1	1
5-Feb	1	0	0
12-Feb	0	0	0
19-Feb	2	1	0
26-Feb	3	1	2
5-Mar	7	0	0
12-Mar	22	4	7
19-Mar	3	0	0
26-Mar	5	10	7
2-Apr	1	1	0
16-Apr	0	0	0
23-Apr	9	0	10
24-Apr	17	14	1

Note. Line break indicates follow-up sessions.

Table 15

Summary of Negative Comments Produced per Triad (LI 2)

Date	LI 2	CH1	CH2
29-Jan	0	5	5
5-Feb	0	2	2
12-Feb	3	7	4
19-Feb	0	3	3
26-Feb	0	1	0
5-Mar	0	0	1
12-Mar	0	0	0
19-Mar	0	1	1
26-Mar	0	0	1
2-Apr	0	0	0
16-Apr	1	3	8
23-Apr	0	1	3
30-Apr	0	1	4

Note. Line break indicates follow-up sessions.

Table 16

Summary of Negative Comments Produced per Triad (LI 3)

Date	SLI 3	CH1	CH2
29-Jan	6	4	4
5-Feb	9	8	8
12-Feb	13	21	4
19-Feb	8	4	3
26-Feb	3	2	7
5-Mar	11	2	11
12-Mar	11	12	3
19-Mar	0	0	0
26-Mar	3	0	0
2-Apr	0	1	4
16-Apr	9	0	7
23-Apr	7	2	3
24-Apr	1	0	1

Note. Line break indicates follow-up sessions.

Table 17

Summary of Negative Comments Produced per Triad (LI 4)

Date	SLI 4	CH1	CH2
6-Feb	0	1	1
13-Feb	0	0	0
20-Feb	0	0	0
27-Feb	0	0	1
6-Mar	1	1	0
12-Mar	0	0	0
20-Mar	0	0	0
27-Mar	0	0	0
3-Apr	0	0	1
16-Apr	0	0	0
23-Apr	14	0	21
24-Apr	5	4	0

Note. Line break indicates follow-up sessions.

Appendix F: Composite Behaviors of Treatment Goals

(B. Brinton, Personal Communication, 1998)

Goal #1: To increase successful access to groups of peers in ongoing play

Composite Behaviors:

a. Approach children in an ongoing activity (Walk)

b. Hover and watch what the children are doing (Watch)

c. Contribute to the play (Talk)

Goal #2: To increase cooperative play or work with peers

Composite Behaviors:

a. Asking and answering questions

b. Staying with the group activity (Stay with the Play)

c. Talking about what others are doing (Say something nice)

d. Contributing to the group

e. Paying attention to what others are doing

Goal #3: To increase positive comments to peers in play or work

Composite Behaviors:

a. Encouraging comments ("you can do it" or "try again")

b. Positive comments on the activity ("you got a six")

c. Appropriate Compliments ("you're lucky" or "you are a good shot")

d. Offering to help ("here you can be pink")