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The Effects of a Literature-Based Emotion Recognition Program on  
Teacher Report of Sociability and Withdrawal for Six Children  
With Social Communication Difficulties

Jennifer L. Harris

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of  
Master of Science

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## ABSTRACT

### The Effects of a Literature Based Emotion Recognition Program on Teacher Report of Sociability and Withdrawal for Six Children With Social Communication Difficulties

Jennifer L. Harris  
Department of Communication Disorders  
Master of Science

Children with language impairment (LI) often demonstrate difficulties in social communication. Although a number of general social communication interventions have been suggested, there is relatively little work done to examine the efficacy of these interventions for school-age children with LI, and none reported to target general emotional competence. The purpose of this study was to examine the effects on teacher perception of an intervention designed to improve emotion understanding. The intervention was centered on the presentation and use of children's stories to introduce and practice aspects of emotion understanding. The withdrawn and sociable subscales of the Teacher Behavior Rating Scale (TBRS) were selected as variables on which to measure teacher perception. Following treatment five of the six participants scored higher ratings of prosocial behavior, with two demonstrating overall reductions in withdrawn behavior and increases in sociable behavior. For one of these participants, the reported progress was notable. The most positive indicator of change following treatment was the reduction in solitary-active withdrawal behavior reported for three of the participants. A reduction in this type of behavior would most likely have an important impact on the quality of social interactions experienced by these individuals.

Keywords: language impairment, social communication, emotion understanding, withdrawal,  
sociability, intervention, school-age children

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I wish to thank those at Alpine School District including Kathi Ritter, Sylvia Allan, and Dorthy Stott, as well as the teachers of each of the participants, who paved the way for the project to develop, helped to identify participants, and who offered support and encouragement throughout.

The contributions of my family cannot be overlooked. My parents and siblings have loved and supported me continually. I also appreciate the example my mother set by earning her own Master's Degree from BYU and blessing our family with her knowledge and love of literature. Last but not least, my thanks go to my husband Jim who encouraged me to go back to school and supported me every step of the way. The sacrifices that he and our son Joshua made will long be remembered.

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## DESCRIPTION OF STRUCTURE AND CONTENT

This thesis is written in a hybrid format. The hybrid format integrates journal publication formats with traditional thesis requirements. The preliminary pages of this thesis reflect university requirements for submission. The thesis report is presented as a journal article, conforming to length and style requirements for submitting research reports to journals in communication disorders. Appendix A includes an annotated bibliography. Appendix B contains a copy of the parental permission form. Appendix C includes of a sample lesson plan used in treatment. Appendix D consists of a sample perspectives chart used in treatment.

## Background

Social communication is “The intersection of language and social behaviors observed during peer interactions . . . that is, the verbal and nonverbal behaviors children display as they approach peers, maintain conversations, and resolve conflicts during peer interactions” (Timler, Olswang, & Coggins, 2005, p. 171). It has long been recognized that children with Autism Spectrum Disorder (ASD) have problems with social communication (American Psychiatric Association, 2000; Geurts & Embrechts, 2008; Kanner, 1943; McConnell, 2002; Rogers, 2000; Ryan & Charragáin, 2010; Sigman, Dijamco, Gratier, & Rozga, 2004; Strain, Schwartz, & Bovey II, 2008; Volkmar, Lord, Bailey, Schultz, & Klin, 2004). More recently, work with children with language impairment (LI) has demonstrated that many of these children also have difficulties in social communication.

### Social Interactional Problems of Children with LI

Children with LI have been found to have difficulty with a variety of social tasks, including accessing on-going interactions (Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993; Liiva & Cleave, 2005), participating in cooperative learning activities (Brinton, Fujiki, & Higbee, 1998) and negotiating with peers (Brinton, Fujiki, & McKee, 1998). These children also experience a variety of negative social outcomes such as greater peer rejection (Gertner, Rice, & Hadley, 1994), fewer friendships (Durkin & Conti-Ramsden, 2007; Fujiki, Brinton, Hart, & Fitzgerald, 1999), and higher rates of social withdrawal (Fujiki, Brinton, Morgan, & Hart, 1999; Hart, Fujiki, Brinton, & Hart, 2004).

It is frequently assumed that children with LI have social difficulties because of their problems with language structure. Recent findings suggest however, that although language plays an important role, it may not completely explain this relationship (Brinton, Fujiki, &

Higbee, 1998; Hart, Fujiki, Brinton, & Hart, 2004). In attempting to determine what additional factors might contribute to the social difficulties of children with LI, several investigations have examined behaviors within the realm of emotional competence. In the following review, the relationship between social and emotional competence is discussed. The work of researchers who have investigated aspects of the emotional competence of children with LI is then reviewed. Finally, an intervention addressing specific aspects of emotional competence for children with social communication problems is proposed.

### **Emotional and Social Competence**

Social competence is closely related to emotional competence (Denham, 1998). To be socially competent an individual must be able to select social goals that are appropriate for the context in which the interaction occurs. The individual must also select behaviors that are effective in accomplishing these goals (Odom, McConnell, & Brown, 2008). Emotional competence plays an important role in both selecting appropriate goals and the behaviors used to achieve those goals (Denham, 1998; Denham, von Salisch, Olthof, Kochanoff, & Caverly, 2002). By way of illustration, if one cannot read the emotion conveyed by another person's face during conversation, it will be difficult to respond appropriately as the interaction progresses.

The relationship between emotional competence and social competence is complex. In order to explain this connection, Denham et al. (2002) proposed three primary yet developmentally independent components of emotional competence: experiencing emotion, expressing emotion, and understanding emotion. Experiencing emotion involves an awareness of an individual's own emotions. Expressing emotions requires an understanding of what emotion should be conveyed within the context of the social interaction. It also involves an understanding of how that emotion should be expressed. This involves a careful balance of both

what is required in the immediate context, as well as for the relationship in the long term. Experiencing and expressing emotions contribute to emotion understanding, and similarly, emotion understanding contributes to experiencing and expressing emotions. For example, emotion understanding includes the comprehension of implicit social rules which govern the display of emotion. The prosocial and self-protective functions of each of these social rules may conflict with one another. An individual must first recognize the applicable rules as well as to recognize this conflict, and then to carefully select the most appropriate display of emotion in order to achieve the maximum social benefit desired.

By way of illustration, when two people engage in a social interaction, it is vital to first recognize that an affective message has been sent. An individual who misses this information will then be at a disadvantage during the course of the conversation. Once the message has been recognized and received, it must be interpreted correctly. Once interpreted the individual must then apply knowledge regarding the rules of restraint which apply most appropriately for the context of the given situation (Denham et al., 2002).

While all three components are important, the focus of this study is on emotion understanding and its impact on general perceptions of social competence. It is assumed that if a child cannot understand the emotions expressed and experienced by peers, it will be much harder for that child to respond appropriately. In school-age children problems with emotion understanding can also lead to problems with emotion regulation. This can lead to exclusion from peers who wish to distance themselves from uncontrollable stressors (Denham et al., 2002).

Emotion understanding has particular relevance for the social competence of children with LI. Recently several researchers have explored deficits in the ability of children with LI to understand emotion expressed by others. These studies are briefly reviewed below.

### **Emotion Understanding in Children with LI**

Researchers have found that children with LI have difficulty with various aspects of understanding emotion, including interpreting emotion expressed by prosody (Boucher, Lewis, & Collis, 2000; Trauner, Ballantyne, Chase, & Tallal, 1993), on faces (Spackman, Fujiki, Brinton, Nelson, & Allen, 2005), and elicited by particular situations (Ford & Milosky, 2003; Spackman, Fujiki, & Brinton, 2006). Children with LI also have difficulty understanding when to hide emotion in order to preserve a social relationship (Brinton, Spackman, Fujiki, & Ricks, 2007). This work is discussed as follows.

Boucher, Lewis and Collis (2000) looked at the ability of children to identify emotion conveyed by voice. This was done through four experiments. Of primary importance to this review was the experiment involving affect naming and vocal-facial affect matching. For these tasks, the performance of children with ASD was compared to that of both typically developing children and to children with LI. As expected, the typically developing children performed better than the children with LI and the children with ASD on the affect-naming test. Surprisingly, the children with LI performed more poorly than the children with ASD on both tasks. Furthermore, the children with ASD did not perform any worse than the typical children on the task involving vocal-facial affect matching.

Spackman, Fujiki, et al. (2005) examined the ability of children with LI to identify emotion from photographs of faces. To reduce the verbal demands of the task, cards representing each of the six emotions as well as one card representing "I don't know" were provided for the participants to use in answering the questions. Children with LI were able to identify *happy*, *sad*, *angry*, and *afraid* with similar accuracy to that of the typically developing children. These

children were significantly less accurate in identifying *surprise* and *disgust*. In both groups *surprise* was most often interpreted as *scared* and *disgust* as *anger*.

These results indicated that children with LI recognize the expression of emotion differently than their typically developing peers. Spackman et al. (2006) suggested that these differences may be due to multiple and possibly inter-related factors. For example, limited language skills may result in fewer interactions with others about emotions. This may result in fewer opportunities for a child to learn about emotions. Another possibility could be that reduced understanding of emotion may reduce opportunities for the child to participate in the types of interactions that facilitate language development.

Ford and Milosky (2003) explored the abilities of kindergarten children with LI and their chronologically age matched peers to infer causes for emotion. After listening to several short scenarios, these children were asked to infer the emotional reactions of the main characters. The children with LI produced more errors than the typically developing children. These children were also more likely to involve errors of valance, such as *happy* for *angry*, than the typically developing children. Ford and Milosky concluded that children with LI have greater difficulty integrating emotion understanding with event context in order to make an accurate social inference.

Spackman, Fujiki, and Brinton (2006) extended Ford and Milosky's (2003) study to older children. These authors presented school-age children with stories in which the main character was involved in situations that would be expected to elicit certain emotions such as: *happy*, *sad*, *angry*, or *afraid*. The children were first asked to identify what emotion the character mostly likely experienced for each situation, and then to explain why. The children with LI were

significantly less accurate and less sophisticated in their identifications and descriptions than were typically developing children.

Brinton, Spackman, et al. (2007) explored children's understanding of when to hide emotion in order to preserve a social relationship. In this study, children were presented with 10 hypothetical social situations in which a character experienced an emotion that, for social purposes, should be hidden. Although the children did not differ significantly in their judgments of the social display rules governing these situations, the children with SLI indicated significantly fewer incidences in which they thought the emotions should be hidden. These results suggest that children with SLI differ from their typical peers in emotional understanding as it relates to the impact of emotion expression on the immediate communication interaction and resulting personal relationship with their communication partners.

Taken as a whole, these studies indicate that there is considerable evidence suggesting that children with LI have difficulty with various aspects of emotion understanding. These problems involve relatively basic emotion recognition tasks, such as interpreting the emotion expressed by prosody. These difficulties also extend to more complex emotion understanding tasks, such as knowing when an emotion should be hidden to preserve a social relationship. Given the connection between emotional and social competence, it is likely that these problems with emotion understanding impact social interactions.

### **Statement of the Problem**

Although a number of general social communication interventions have been suggested, there is relatively little work done to examine the efficacy of these interventions for school-age children with LI. By way of illustration, a recent systematic review of the literature conducted by an ad hoc committee of the American Speech-Language-Hearing Association found that there

have been only 8 published studies addressing language use in context, with none addressing the general area of emotional competence, or more specifically, emotion understanding (Gerber, Brice, Capone, Fujiki, & Timler, in press). There is good reason to believe that a social communication intervention that focuses heavily on emotion understanding could impact the ability of children with LI to successfully participate in social interactions.

The purpose of this study was to examine the effects on teacher perception of an intervention designed to improve emotion understanding.<sup>1</sup> These perceptions were studied by comparing before and after ratings of specific social behaviors. Teacher perception was examined because teachers have considerable experience observing the social behavior of children. Withdrawn and sociable behaviors were selected as variables on which to measure teacher perception because it has been demonstrated that children with social communication difficulties have problems with specific subtypes of these behaviors. The current study was undertaken to examine whether or not intervention designed to improve emotion understanding would change teacher perception of *solitary passive withdrawal*, *solitary-active withdrawal*, *reticence*, *impulse control/likeability*, and/or *prosocial* behaviors in children with social communication difficulties.

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<sup>1</sup> The efficacy of the proposed intervention was examined in multiple ways. Teacher perception was one of several variables being examined and is the focus of this thesis.



## Method

### Research Design and Data Collection

This thesis was part of a larger project which examined the effectiveness of an intervention targeting emotion understanding in 6 children with poor social communication abilities. The larger project employed a single subject, multiple baseline design. As part of the larger project, baseline measures and a variety of standardized assessments were administered to the participants before and after the intervention.

The focus of this thesis was to examine changes in teacher perceptions as measured by the *Teacher Behavior Rating Scale (TBRS, Hart & Robinson, 1996)*. The TBRS was administered to measure global changes in teacher perceptions of social competence. A case study design was used to compare teacher-observed social behaviors pre and post treatment. Of primary interest were the results on three subscales measuring *withdrawal* and two subscales measuring *sociability*.

### Participants

Six children (5 boys and 1 girl) with social communication problems, ranging in age from 5;1 (years;months) to 6;10, participated in the intervention. The participants were recruited with the assistance of the principal and speech language pathologist of a local elementary school. Of the six children, there were three boys and a girl (ages 5;7 to 6;10) with LI, and two boys (ages 5;1-5;3) with ASD. At the time of identification all of the participants were receiving language intervention in the school setting. All participants produced a composite language score below 85 on the *Comprehensive Assessment of Spoken Language CASL (Carrow-Woolfolk, 1999)* and an IQ score over 80 on the *Universal Nonverbal Intelligence Test UNIT (Bracken & MaCallum, 2003)*. Additionally, all of the children were found to have typical hearing as indicated from a

pure tone screening by the school district audiologist or speech-language pathologist. Detailed descriptive data are presented in Table 1.

**Children with ASD.** E.F and B.J. were both males diagnosed with ASD. At the time the study began, they were enrolled in a small group kindergarten. They were each receiving one-on-one pullout intervention services for twenty minutes twice a week for receptive and expressive language deficits.

E.F.'s ethnicity was Caucasian, and he was 5;3 (years;months) at the time the study began. Prior to his current placement, he was enrolled in a preschool for children with ASD. He initially presented with unintelligible speech consisting of multiple phonological patterns. Prior intervention had primarily targeted phonological processes. At the time of the study, his speech intelligibility had improved considerably, although he continued to have a few articulation goals. His language goals included the expansion of receptive and expressive vocabulary. His full-scale IQ score on the UNIT was 101 and his academic performance was on grade level although he continued to receive occupational therapy (OT) and adapted physical education (PE) services. According to school personnel, the primary factor prohibiting him from mainstream placement involved poor social skills and emotion regulation.

B.J.'s ethnicity was Caucasian and he was 5;1 at the start of the study. He was initially enrolled in a preschool for children with ASD. At that time he produced less than 5 utterances independently, although he was able to imitate others. He was able to produce all developmentally appropriate phonemes, and could produce some CVC syllables, but his primary communication consisted of jargon with varied intonation. At the start of the study he was not on grade level for academics, and he had some difficulties with short-term memory tasks. His

Table 1

*Comprehensive Assessment of Spoken Language (CASL) and Universal Nonverbal Intelligence**Test (UNIT) scores.*

Participant	CASL <sup>1</sup> Scores						UNIT <sup>2</sup> Scores
	Age	Core Composite	Antonyms	Syntax Const. <sup>3</sup>	Paragraph Comp. <sup>4</sup>	Pragmatic Judgment	Full Scale IQ Score
E.F.	5;03	78	91	67	94	76	101
B.S.	6;10	69	76	74	80	65	88
M.W.	5;08	77	91	89	64	78	83
M.P.	5;10	75	82	79	78	81	88
B.J.	5;01	64	71	67	70	68	108
T.S.	5;03	80	88	92	60	96	91

<sup>1</sup> Comprehensive Assessment of Spoken Language (CASL)<sup>2</sup> Universal Nonverbal Intelligence Test (UNIT)<sup>3</sup> Syntax Construction<sup>4</sup> Paragraph Comprehension

cognitive scores, however, indicated an overall average ability to learn. He received adapted PE and OT services. A language sample indicated that he frequently continued to use jargon in spontaneous conversation and had some difficulty formulating complete sentences. His language goals included making requests, reducing jargon, putting utterances together to make complete sentences, and using appropriate pronouns.

**Participants with LI.** Four of the children (3 boys and 1 girl) had a primary diagnosis of LI. At the time the study began, three were enrolled in general education kindergarten classes and one was enrolled in a general education 1<sup>st</sup> grade class. They were each receiving one-on-one pullout intervention services for twenty minutes twice a week for receptive and expressive language deficits.

B.S. (6;10) was a male Caucasian with a diagnosis of LI. At the start of the study he attended 1<sup>st</sup> grade. He joined the school's special needs preschool at age 4. At that time he had mild dysarthria and dysphagia. He was initially referred to speech services and treated for poor articulation. During the course of treatment, it was observed that he was also beginning to lag behind his peers in language ability. At the start of the study, he no longer required intervention targeting his articulation, but his language goals included sequencing of narratives, appropriate production of regular past tense verbs, and appropriate use of pronouns.

M.W. (5;8) was a female Caucasian initially identified with developmental delay, however, the school SLP did not believe that she should be classified as intellectually disabled. This was supported by a score of 83 on the UNIT, which placed her near the typical range for cognitive functioning. She was initially enrolled in the special needs pre-school at age 3. At the time of the study, she attended a mainstream kindergarten class, with one hour of pull-out resource support per day. She received adapted PE and OT services. She attended a special

class for reading, in which she was working on identifying upper and lower case letters, high frequency sight words, and rhyming. She attended a special math class where she was working on patterns, counting, and identifying and writing numbers. Her language goals included answering story comprehension questions, retelling a story, and expanding general expressive and receptive vocabulary.

M.P. (5;10) was a male Caucasian initially identified with developmental delay, however, at the time of the study, the special education team did not believe that he should be classified as intellectually disabled. This judgment was supported by a score of 88 on the UNIT. He was initially tested at age 3. At that time, he spoke only in vowels and used mostly gestures to communicate. He demonstrated comprehension of some vocabulary and verbs. It was also observed that he did not interact with other children, but he enjoyed being around them. At age 3, he was enrolled in the special needs preschool where he received speech services. At the time of the study, he attended a mainstream kindergarten. M.P. continued to have phonological processes and language difficulties. His behavior and attention were appropriate for his age, and he was performing at grade level academically. M.P. continued to have fine motor difficulties for which he received OT services. In spite of his communication difficulties, he enjoyed interacting with peers.

T.S. (5;3) was an African American male with a diagnosis of LI. He was enrolled in a special needs preschool at age 4 for low scores in all areas of development, but his lowest scores were in communication. He presented with reduced vocabulary, and he relied on general vocabulary words to communicate. He was able to combine words but did not produce novel sentences. Instead he relied on the use of familiar and over-used scripts to communicate. He continued to exhibit academic difficulty as the gap with his typically developing peers continued

to widen. At the time of the study, he attended a mainstream kindergarten with pull-out resource support. His language goals involved targeting an increase in his receptive and expressive vocabulary, answering questions, and understanding basic concepts like spatial references (*in, out* etc.).

### **Procedures**

Two graduate level student clinicians provided treatment and were supervised by the school's onsite master's level speech-language pathologist and the university clinic director (also a master's level speech-language pathologist). The project was overseen by university professors of communication disorders with clinical and research experience working with children with LI.

Each participant in the intervention received 20, twenty-minute treatment sessions (held two and three times per week) in which the participant met individually with the clinician. The treatment sessions were centered on the presentation and use of children's stories to introduce and practice aspects of emotion understanding.

Mercer Mayer's *A Boy, A Dog and A Frog* (1967) series were selected for content that would be of interest to kindergarten and first grade children (a boy making friends with animals) and illustrations that contained clear and identifiable actions and facial expressions. In addition, these books did not contain any text, requiring the reader to infer relationships, emotions, and character intent.

Each story was reviewed multiple times with the participant while the clinician, following a script, highlighted the emotions and causal relationships as they occurred in the story. Toys and other objects such as a stuffed dog, a fish net, a pail, and a toy frog were

provided to the participants and used as props to support exploration and re-enactment of the narratives.

Participating in expansion activities, reproducing story dialog, role-playing story events, retelling the story, and journaling were used to help the participant relate the story to personal experience. As the clinician and child went through the book, the dialog and activities were adapted to meet the specific needs of each child. A sample lesson plan and script are included in appendix C.

The following scenario was followed. The child looked at the book for the first time and told the story without prompts. The clinician then presented the story to the child while following a script which emphasized character motivations, labels for emotions, emotional inferences, contrasting emotions, and the cause and effect of emotions. The subject was then given the opportunity to use props in order to act out the story. This was done while the clinician narrated the child's actions and highlighted emotions and causal relationships through the use of connective words when appropriate (for example: *because, so, if, then, since*). To emphasize moments when the story characters experienced contrasting emotions for the same event, these events were acted out from the perspective of each character and further developed using a perspectives chart. The perspectives chart consisted of spreadsheet with boxes for each character involved in a particular event. Spaces were provided in order for the participant to indicate what emotions each character experienced as a result of that event. A similar perspectives chart was used during role play expansion activities, in which the participant explored personal thoughts and emotions, and then compared them to the thoughts and emotions of another (the clinician in this case). A sample perspectives chart is included in appendix D.

Every session included an opportunity for the participant to journal any key points learned for the day. Each participant was provided with a binder containing notebook paper for use as a journal of session activities. Crayons were provided in order for the participant to draw, color and write in the journal. While journaling, the student clinician asked questions to help the participant connect the emotions experienced by the characters in the story to the subject's own personal experiences. For example, "How would you feel if you were the boy, dog, or frog?" or "Tell me about a time when you felt sad."

Next, the participant went through the story and added thought bubbles about what each of the characters was thinking or feeling throughout the story or journal entry. These were written or drawn on sticky notes and placed over each appropriate character. This provided an opportunity for making contrasting emotions more explicit. The children then drew themselves into a scene. This enabled the participant to add a thought bubble about what they were personally thinking or feeling.

Expansion activities were used to build on information introduced within the story. For example, the interactive software, Mind Reading (Baron-Cohen, 2004) was used to view videos of different people experiencing emotions. This program consists of four main applications: emotions library, learning centre, games zone, and MR manager. The emotions library contains emotions arranged into 24 categories. Six individuals produce examples of the various emotions. The individuals represent various ages and genders in differing combinations. The learning centre is a section in which emotions can be taught using a variety of lessons and quizzes. The difficulty level is adjustable to meet the age and ability levels of the user. The game zone provides activities such as viewing typical daily-life settings, in which the user identifies how people are feeling, or playing card games in which the user matches faces to win. The MR



manager allows the user to set up a profile and select custom lists of emotions and learning levels for practice. For each of the participants, a custom list was created in order target specific emotions introduced from the stories. All of the participants functioned at level 1. Using this software, the participants were given the opportunity to observe, label, and match facial and vocal expressions of emotions.

Role-play activities were used to help the participant to practice emotion understanding in every-day activities. For example, food items were presented to the participant in order to encourage a discussion about likes and dislikes. Later, paper sacks were provided in order to role-play packing lunches based on the food likes and dislikes of another person. Following this discussion the participant pretended to open a sack lunch and explore he how he would feel about eating each item. Next the participant would talk about how someone else with different likes and dislikes would feel about eating the same foods.

### **Instrumentation: The TBRS**

The TBRS is an informal instrument that measures various child social behaviors using teacher ratings. It has been utilized for large groups of pre-school and elementary age children, as well as in studies for children with LI (Fujiki, Brinton, Morgan, & Hart, 1999; Hart et al., 2004). It contains 161 items that address areas of aggression, withdrawal, and sociability (Fujiki, Brinton, Morgan et al., 1999). For this study a shorter 79-item version was used that included items related to withdrawal and sociability.

**Psychometric properties.** The psychometric properties of the TBRS for elementary-school age children were described in detail in Hart et al. (2004). To summarize, a factor analysis was used to make sure the items were grouped appropriately. Teachers completed questionnaires on 382 school-age children ranging in age from 6;4 to 12;6, ( $M = 8;10$ ,  $SD = 1;6$ ).

After dropping several withdrawal items with (a) relatively little variance, (b) substantial cross-loadings ( $>.40$ ), or (c) low item-total correlations for factors derived in preliminary analyses, a final principal components analysis produced three reliable factors for withdrawal with eigenvalues greater than 1, accounting for 55% of the item variance. The sociability items were scrutinized in a similar fashion. This process yielded two reliable factors with eigenvalues greater than 1 accounting for 61% of the item variance. The resulting 16 items reflecting the subtypes of withdrawal and 13 items reflecting the subtypes of sociability were selected based on this evaluation.

Test-retest reliability was measured by asking the teachers to complete the assessment a second time for 94 of the children (mean age 8;5,  $SD = 1;5$ ). The second assessment occurred approximately 4 weeks after the first. This length of time was used to ensure that the teachers did not recall their previous responses while precluding developmental changes in the children between the two assessments. All the subscales were found to be temporally reliable with Pearson correlations on the withdrawal subscales of .70 for reticence, .76 for solitary-active withdrawal, .73 for solitary-passive withdrawal, and on the sociability subscales .74 for likeability and .71 for sociability.

**Subscales.** For this study three subscales of withdrawal and two subscales of sociability were used. Each subscale consisted of 4 to 5 questions. These questions were interspersed among 56 additional questions drawn from the TBRS at large, for a total of 79 items.

The subscales focusing on withdrawn behavior were *reticence*, *solitary passive withdrawal*, and *solitary active withdrawal*. The *reticence* subscale included teacher ratings of the child exhibiting fear in approaching peers, watching others without joining in the play, and electing unoccupied behavior when there is plenty to do (Asendorpf, 1991; Coplan & Rubin,

1998; Hart et al., 2004). For example, one item in this subscales stated, “Stares at other children without interacting” (Hart & Robinson, 1996).

The *solitary-active withdrawal* subscale described children who acted out roles or animated objects in the vicinity of other children but failed to interact with their peers. It also included observations of repetitive sensorimotor action with or without an object (Coplan, K., Fox, Calkins, & Stewardt, 1994; Hart et al., 2004). A sample item from this subscale stated, “Animates toys near peers without interacting (e.g., pretends doll or a stick is alive)” (Hart & Robinson, 1996).

The *solitary-passive withdrawal* subscale was designed to characterize the behavior of children who appeared to enjoy solitary activity such as reading a book alone and away from peers or building and playing with toys by themselves rather than with other children (Asendorpf, 1991; Coplan & Rubin, 1998; Hart et al., 2004; Rubin, 1982). A sample item from this subscale was as follows: “Builds things by self rather than with other children” (Hart & Robinson, 1996).

The subscales measuring sociability were labeled as *likeability* and *prosocial behavior*. *Likeability* examined friendly and responsive behaviors, emotion and impulse control, and cooperation during rough and tumble play (Hart, McGee, & Hernandez, 1993; Hart et al., 2004). A sample item from this subscale stated, “Other children like to be with the child” (Hart & Robinson, 1996).

The *prosocial* subscale consisted of behaviors reflecting helping, sharing, and comforting others (Hart et al., 2004; Radke-Yarrow, Zahn-Waxler, & Chapman, 1983). A sample item from this subscale was: “Offers to help a child having difficulty with task” (Hart & Robinson, 1996).

The questionnaire was completed both pre- and post-treatment by the teacher of each child participating in the study. The teachers were asked to use a three-point scale to compare a child's present behavior to typical age-level expectations. Teachers rated each behavior listed as 0- never observed, 1-sometimes observed, or 2- very often observed.

**Administration of the TBRS.** The teachers were aware that the children were enrolled in speech language pathology services but were unaware of the details of the intervention and which questions were being used by the researchers. For those interested, a copy of the questionnaire is available from the author, Dr. Craig, Hart, Brigham Young University. The written instructions given to the teachers were as follows:

This questionnaire is designed to measure how often a child exhibits different types of social behaviors. Understanding the development of social skills is important for promoting the educational and psychological well-being of students. Therefore, your careful response to each item is requested. Reflecting on your experience with children in this age group, read each item in this questionnaire and think about the child's present behavior relative to others you know or have known. Decide how often the child does the things described. If you are not sure about a particular item, use your best judgment based on your knowledge of the child's personality (Hart & Robinson, 1996).

Teachers completed the TBRS before the intervention was initiated and then again after it had been completed.

## Results

Once the data were collected, only the items of the TBRS relating to the three subscales of withdrawal and two subscales of sociability were scored. The mean scores for each subscale were calculated by summing the ratings of all of the items in the subscale and dividing by the number of items in that subscale. Mean scores were compared pre and post treatment in order to determine if any changes in children's behavior were observed by the teachers. A high score on the withdrawal subscales indicated high levels of observed withdrawn behaviors. Conversely, a high score on the sociability subscales indicated higher sociable behavior. Because of the small sample size ( $n = 6$ ) the results for each participant were examined individually. All comparisons to typical norms were taken from mean scores for typical boys, ages 5-8, and typical girls, ages 5-8, reported by Fujiki, Brinton, Morgan et al. (1999).

### E.F.

**Withdrawal.** The results of pre- and post-treatment mean scores for the withdrawal subscales of the TBRS for E.F. are presented in Table 2. This participant's ratings showed a fair amount of variability across domains between pre-and post-treatment performance. According to his teacher's report, E.F.'s solitary-active behavior remained stable at .25 between pre-and post-treatment assessments. E.F.'s solitary-passive withdrawal rating improved with a decrease from 1.00 to .60. At the same time, his reticent withdrawal rating worsened with an increase from .50 to .75. All of E.F.'s ratings pre and post treatment were notably poorer than the means reported for typically developing boys.

**Sociability.** The mean scores for the sociability subscales are presented in Table 2. Both of E.F.'s sociable subscale scores showed notable declines from pre to post treatment.

Table 2

*E.F. Pre- and Post-Treatment Mean Scores for Withdrawal and Sociability Subscales on the Teacher Behavior Rating Scale (TBRs).*

Subscale	Pre-treatment	Post-treatment	Typical Mean <sup>1</sup>
<u>Withdrawal</u>			
Solitary-Active Withdrawal	.25	.25	.07 (SD = .10)
Reticence	.50	.75	.42 (SD = .30)
Solitary-Passive Withdrawal	1.00	.60	.17 (SD = .28)
<u>Sociability</u>			
Prosocial	1.00	.69	1.70 (SD = .31)
Impulse Control/Likability	1.80	1.17	1.78 (SD = .35)

*Note:* Range: 0 (never observed) to 2 (very often observed).

<sup>1</sup>Mean scores for 12 typical boys ages 5-8 (Fujiki, Brinton, Morgan et al., 1999)

In addition, all of E.F.'s scores, taken both pre- and post-treatment, were significantly lower than the means for typical boys.

### **B.S.**

**Withdrawal.** Pre- and Post- TBRS mean scores for the withdrawal subscales for B.S. are presented in Table 3. B.S.'s initial rating in reticence was within the typical range and showed no change when measured post-treatment. Solitary passive withdrawal also showed little pre- to post- change. The participant's rating on both occasions indicated significantly higher levels of this type of withdrawal than compared to the mean for typical boys his age. B.S.'s score in solitary active withdrawal improved, falling from .50 pre-treatment to .00 after treatment. This represented a notable positive change in that the pre-treatment score (over 5 SD's above the typical mean) dropped into the typical range post-treatment.

**Sociability.** B.S.'s ratings for the sociability subscales are presented in Table 3. His impulse control/likeability rating was in the typical range before treatment and remained in this range following treatment. B.S.'s prosocial rating improved slightly from 1.40 to 1.50, which placed him low but within a standard deviation of the typical mean on both occasions.

### **M.W.**

**Withdrawal.** Table 4 contains M.W.'s mean ratings for pre- and post-treatment administration of the withdrawal subscales of the TBRS. M.W.'s solitary-active withdrawn behavior improved, falling from .75 at pre-treatment to .25 after treatment. Although this decrease was notable, her post treatment score was still more than a standard deviation above

Table 3

*B.S. Pre- and Post-Treatment Mean Scores for Withdrawal and Sociability Subscales on the Teacher Behavior Rating Scale (TBRIS).*

Subscale	Pre-treatment	Post-treatment	Typical Mean <sup>1</sup>
<u>Withdrawal</u>			
Solitary-Active Withdrawal	.50	.00	.07 (SD = .10)
Reticence	.00	.00	.42 (SD = .30)
Solitary-Passive Withdrawal	1.20	1.00	.17 (SD = .28)
<u>Sociability</u>			
Prosocial	1.40	1.50	1.70 (SD = .31)
Impulse Control/Likability	2.00	2.00	1.78 (SD = .35)

*Note:* Range: 0 (never observed) to 2 (very often observed).

<sup>1</sup>Mean scores for 12 typical boys ages 5-8 (Fujiki, Brinton, Morgan et al., 1999)



Table 4

*M.W. Pre- and Post-Treatment Mean Scores for Withdrawal and Sociability Subscales on the Teacher Behavior Rating Scale (TBRS).*

Subscale	Pre-treatment	Post-treatment	Typical Mean <sup>1</sup>
<u>Withdrawal</u>			
Solitary-Active Withdrawal	.75	.25	.05 (SD = .14)
Reticence	1.00	1.25	.14 (SD = .21)
Solitary-Passive Withdrawal	1.20	1.20	.18 (SD = .29)
<u>Sociability</u>			
Prosocial	.80	1.03	1.78 (SD = .35)
Impulse Control/Likability	1.60	1.17	1.83 (SD = .18)

*Note:* Possible range: 0 (never observed) to 2 (very often observed).

<sup>1</sup>Mean scores for 8 typical girls ages 5-8 (Fujiki, Brinton, Morgan et al., 1999)

the mean for girls ages 5-8. M.W.'s reticent behavior rating worsened, rising from 1.00 to 1.25. Both pre- and post-treatment ratings were considerably higher than the typical mean. Her solitary-passive behavior remained stable at 1.20 both before and after treatment. This level was more than three standard deviations above the mean for typical girls her age.

**Sociability.** Table 4 contains M.W.'s mean scores for the sociability subscales. Her prosocial behavior improved from .80 to 1.03; at the same time her impulse control/likeability rating fell from 1.60 to 1.17. M.W.'s pre-and post-treatment ratings for both sociability subscales were notably lower than the ratings for typical children her age.

#### **M.P.**

**Withdrawal.** The pre- and post-treatment mean scores for the withdrawal subscales of the TBRS for M.P. are found in Table 5. M.P.'s solitary-active behavior improved with a decrease from .25 to .00. His solitary-passive behavior improved from .60 to .40. These post-treatment ratings brought him within the range reported for typical boys ages 5-8 for both subtypes. His reticent behavior remained at .50 for both the pre- and post-treatment assessments.

**Sociability.** Table 5 contains M.P.'s mean scores for the sociability subscales. His prosocial behavior improved from 1.40 to 1.64, and his reported impulse control/likeability rating improved from 1.60 to 1.83. The ratings for both subscales were within the typical range for boys his age before treatment was initiated.

#### **B.J.**

**Withdrawal.** Table 6 presents the pre- and post-treatment mean scores on the withdrawal subscales of the TBRS for B.J.. Unlike several other children who showed improvement through decreases in solitary-active withdrawal, B.J.'s teacher reported an

Table 5

*M.P. Pre- and Post-Treatment Mean Scores for Withdrawal and Sociability Subscale on the Teacher Behavior Rating Scale (TBRs).*

Subscale	Pre-treatment	Post-treatment	Typical Mean <sup>1</sup>
<u>Withdrawal</u>			
Solitary-Active Withdrawal	.25	.00	.07 (SD = .10)
Reticence	.50	.50	.42 (SD = .30)
Solitary-Passive Withdrawal	.60	.40	.17 (SD = .28)
<u>Sociability</u>			
Prosocial	1.40	1.64	1.70 (SD = .31)
Impulse Control/Likability	1.60	1.83	1.78 (SD = .35)

*Note:* Possible range: 0 (never observed) to 2 (very often observed).

<sup>1</sup>Mean scores for 12 typical boys ages 5-8 (Fujiki, Brinton, Morgan et al., 1999)

Table 6

*B.J. Pre- and Post-Treatment Mean Scores for Withdrawal and Sociability Subscale on the Teacher Behavior Rating Scale (TBRS).*

Subscale	Pre-treatment	Post-treatment	Typical Mean <sup>1</sup>
<u>Withdrawal</u>			
Solitary-Active Withdrawal	.50	1.00	.07 (SD = .10)
Reticence	.50	.50	.42 (SD = .30)
Solitary-Passive Withdrawal	1.00	1.00	.17 (SD = .28)
<u>Sociability</u>			
Prosocial	.60	1.03	1.70 (SD = .31)
Impulse Control/Likability	1.20	1.17	1.78 (SD = .35)

*Note:* Possible range: 0 (never observed) to 2 (very often observed).

<sup>1</sup>Mean scores for 12 typical boys ages 5-8 (Fujiki, Brinton, Morgan et al., 1999)

increase from .50 to 1.00. His reported reticent and solitary-passive withdrawn behavior remained stable, both showing similar scores pre- and post-treatment. All of B.J.'s withdrawal scores, taken both pre- and post-treatment, were notably higher than the reported means for typical boys ages 5 to 8.

**Sociability.** The mean scores for the sociability subscales are presented in Table 6. B.J.'s scores improved notably on prosocial behavior and remained stable for impulse control/likeability. His observed prosocial behavior rose from .60 to 1.03. Although this was a notable increase, B.J. still performed below the typical range for boys his age. His impulse control/likeability was relatively stable (1.20 to 1.17). Both pre- and post-treatment ratings for this subtype were considerably lower than the typical mean.

#### **T.S.**

**Withdrawal.** T.S.'s pre- and post-treatment mean scores for the withdrawal subscale of the TBRS are presented in Table 7. For solitary-active withdrawal, T.S.'s ratings remained constant at .25 for both pre- and post-treatment observations. His reticent behavior also remained stable at 1.00. His solitary-passive behavior worsened with an increase from 0.80 to 1.03. All of T.S.'s withdrawal ratings were notably higher than that reported for typical boys his age.

**Sociability.** The ratings for T.S.'s sociability subscales are presented in Table 7. His prosocial behavior improved from 0.60 to 1.03. Although this improvement was notable, he still was rated nearly two standard deviations below the mean. His ratings for impulse control/likeability fell from 1.80 to 1.33. This moved him from within the typical range to more than a standard deviation below it.

Table 7

*T.S. Pre- and Post-Treatment Mean Scores for Withdrawal and Sociability Subscale on the Teacher Behavior Rating Scale (TBRs).*

Subscale	Pre-treatment	Post-treatment	Typical Mean <sup>1</sup>
<u>Withdrawal</u>			
Solitary-Active Withdrawal	.25	.25	.07 (SD = .10)
Reticence	1.00	1.00	.42 (SD = .30)
Solitary-Passive Withdrawal	0.80	1.20	.17 (SD = .28)
<u>Sociability</u>			
Prosocial	0.60	1.03	1.70 (SD = .31)
Impulse Control/Likability	1.80	1.33	1.78 (SD = .35)

*Note:* Possible range: 0 (never observed) to 2 (very often observed).

<sup>1</sup>Mean scores for 12 typical boys ages 5-8 (Fujiki, Brinton, Morgan et al., 1999)

## Discussion

As previously discussed, children with LI often exhibit difficulties with emotion recognition and regulation. These children also frequently experience poor social communication skills. According to Denham (1998), social and emotional competence are closely related. It is, therefore, reasonable to predict that a social communication intervention program which focused primarily on emotion understanding would impact the social competence of children with LI. This study examined the impact of a social communication intervention targeting emotion understanding on teachers' perceptions of social behaviors in school-age children with LI.

Six children with social communication problems participated in the study. Two children were diagnosed with ASD, and four of the children were diagnosed with LI. Teacher ratings of withdrawn and sociable behaviors were obtained using the TBRS, before and after the social communication intervention program. The teachers' responses on the TBRS were examined for suggestions of change in association with this treatment. The social communication intervention program consisted of the presentation and use of children's stories to introduce and practice aspects of emotion understanding. The withdrawal subscales of the TBRS included items indicating solitary-active withdrawn, reticent, and solitary-passive withdrawn behaviors. The sociability subscales of the TBRS included items measuring prosocial and impulse control/likeability behaviors.

### Reflection on Participant Findings

Each participant tended to have his or her own pattern of behavior before during and after treatment. A discussion of those patterns of behavior for each participant will follow.

**E.F.** Of all of the participants, teacher ratings for E.F. demonstrated the most inconsistent performance. Only ratings for solitary passive withdrawal moved in a positive direction following treatment. E.F. was one of two participants diagnosed with ASD; and while he was one of the youngest participants, he had the second highest composite language score on the CASL. E.F. also received notably high withdrawal scores for all three subtypes. Taken together, these results are reminiscent of findings by Fujiki, Spackman, Brinton, and Hall (2004). These authors reported no significant correlation between withdrawal and language ability. During the intervention the clinicians reported that E.F. had the greatest difficulty regulating his display of emotions. His emotional outbursts during treatment sessions were frequently disruptive. Similar disruptive emotional outbursts were observed in other settings and likely contributed to his declining teacher ratings in both subtypes of sociable behaviors. These ratings reflected comments made by teachers and other service providers that E.F.'s inability to regulate his emotions was the primary factor preventing him from being placed in a mainstream academic setting. These impressions and observations underscored this child's problems in understanding and regulating emotion. The extent of these problems may have required a more intensive therapy program, both in terms of number of sessions per week and weeks of the intervention.

**B.S.** B.S. was the oldest of the participants and had a diagnosis of LI. Of the five subscales examined, B.S. was rated within the typical range on 3 scales pre-treatment and showed little change post treatment. Given that he was functioning within the typical range on these subtypes, there was little expectation that his scores would change after intervention. This expectation was borne out.

B.S. was rated as demonstrating high ratings of withdrawal on two of the three subtypes. His post intervention rating on solitary-active withdrawal showed a marked decrease. This



improvement was of note in that solitary-active withdrawal is highly associated with peer rejection (Fujiki, Brinton, Morgan et al., 1999). This child was also high in solitary-passive withdrawal, with a score placing him more than two standard deviations above the mean for typical boys his age. It is of note, however, that this type of withdrawn behavior is less concerning than the other two subtypes. Coplan et al. (1994) observed that solitary-passive withdrawal is not generally associated with anxiety or impulsivity and of the three types of withdrawn behavior observed, has the most positive connotations.

**M.W.** M.W. was the only female participating in the study. She also had the lowest Full Scale IQ Score of all the participants. According to teacher ratings on the TBRIS following treatment her performance was quite variable across the subscales. M.W.'s prosocial scores did improve when compared with pre-treatment scores, but she continued to perform more than two standard deviations below the mean for typical girls her age. Her impulse control/likeability score fell, placing her more than three standard deviations below the mean. Her solitary-active behavior improved, but her reticent behavior worsened. Solitary-passive withdrawal remained the same before and after treatment. Since solitary-active behavior tends to have serious negative social consequences, this change was an important improvement, although clearly she did not function socially in the same manner as her typically developing peers. Further, M.W.'s high pre- and post-treatment ratings in reticence were concerning. Coplan et al. (1994) observed this behavior to be highly associated with anxiety and social wariness. Teacher perceptions of M.W.'s reticent behavior before and after treatment showed little change.

**M.P.** Teacher ratings for M.P. demonstrated the most promising results of all of the participants. Prior to treatment, teachers and other service providers observed that he regularly sought out and enjoyed peer interactions, in spite of communication difficulties. It was also

noted that his behavior and attention were appropriate for his age. Following treatment, he showed marked improvement on four of the five TBRS subscales and remained stable for one. His scores for both solitary-active withdrawal and solitary-passive withdrawal improved enough to place him within the typical range. His scores on the prosocial and impulse control/likability subscales both rose, also placing him in the typical range. On the reticence subscale, his scores remained stable from before to after treatment. This was the only subscale at which he remained above the mean when compared to typical boys his age.

**B.J.** B.J. was the youngest of the participants and one of two diagnosed with ASD. He earned the lowest score for Core Comprehension on the CASL but had the highest Full Scale IQ score. On his TBRS withdrawal subscales B.J. worsened on one but remained stable for the other two. Contrary to the pattern observed in several of the other participants, this child's solitary-active withdrawal rating worsened following intervention. This increase placed him more than four standard deviations above the mean for typical boys his age. While solitary-active withdrawal is a relatively rare behavior, Fujiki, Brinton, Morgan et al. (1999) observed that those individuals who demonstrated this behavior usually demonstrated high levels of the behavior. For sociability, B.J. demonstrated mixed results. His rating on the prosocial subscale improved to just less than a standard deviation below the mean for typical boys his age. His score for impulse control/likeability fell, however, dropping him more than two standard deviations below the mean.

**T.S.** T.S. had the highest Core Comprehension score on the CASL. He also had the highest scores on the Syntax and Pragmatic Judgment subscales of the CASL, but the lowest score for Paragraph Comprehension. On the withdrawal subscales of the TBRS, T.S. remained stable before and after treatment for both solitary-active withdrawal and reticence, but worsened

with an increase in solitary-passive withdrawal. This increase placed him more than two standard deviations above the mean for typical boys his age. As previously noted, this is not necessarily a negative result. His sociability subscales were mixed, with improvement for prosocial behavior and a decline in impulse control/likeability. Fujiki, Brinton, Morgan et al. (1999) observed a high correlation between increased solitary-passive withdrawal and decreased impulse control/likeability. While many factors may have influenced whether or not this participant demonstrated changes in behavior following treatment, one possible issue to consider was his poor paragraph comprehension abilities. This issue is important because the treatment tasks were centered on the presentation and exploration of children's stories. While the literary tasks used were contextually supported, this child's poor comprehension skills may still have contributed to his variable performance.

### **Implications of Findings**

This thesis was designed to examine changes in teacher perceptions that occurred in association with social communication intervention. A discussion of the patterns of behavior observed for each of the participants and their relationship to the patterns of teacher ratings, as well as how this relates to current research, will follow.

The teacher ratings for all of the participants improved on at least one subscale following social communication intervention. Of particular note were the three participants (B.S., M.W., and M.P.) whose solitary-active behaviors were reported to have been reduced between pre- and post-treatment assessment. This particular type of withdrawn behavior tends to result in the most negative peer reactions. For this reason, solitary-active withdrawn types of behavior can result in the negative social consequences, including peer rejection and social isolation (Fujiki, Brinton, Morgan et al., 1999). It also draws a fair amount of negative attention from peers. A reduction

in this type of behavior would most likely have a significant impact on the quality of social interactions experienced by these individuals following treatment. A decrease in this type of withdrawal would also be likely to be noticed by teachers.

Five of the six participants (B.S., M.W., M.P., B.J., and T.S.) scored higher ratings of prosocial behavior following treatment. Of these, two participants (B.S. and M.P.) demonstrated overall reductions in withdrawn behavior and increases in sociable behavior. For one of the participants, M.P., this reported progress was notable. These changes are certain to have a positive effect on the quality of the social interactions these individuals experience. This change in behavior may be suggestive of more global changes in social functioning experienced by these participants following treatment.

In spite of the positive gains reported for some of the participants, there was considerable variability both within and across participants in the teachers' reports of behavior between pre- and post-treatment. This variability in teacher reports may be attributed to a variety of factors, including individual cognitive and language abilities prior to treatment and individual child temperament. One participant, E.F., demonstrated a significant increase in withdrawn behavior and a decrease in sociable behavior. The reason for his apparent decline in social skills following intervention is unclear, but some of these changes may be attributed to his volatile emotional behavior. This behavior may have inhibited his ability to learn within the treatment sessions. The negative attention which this type of behavior likely attracted may also have impacted teacher bias in rating his behavior.

In considering the results for this study, it is important to understand that an increase in solitary passive withdrawal, such as that experienced by T.S., does not necessarily indicate a negative result. According to Coplan et al. (1994), solitary-passive withdrawn behavior has the

most positive implications over the three subtypes. It is more commonly found among typically developing children than the other two types of withdrawal. Children exhibiting this particular type of withdrawn behavior, as opposed to reticence or solitary-active withdrawn behavior, generally appear to be less likely to experience social difficulties. In addition, solitary-passive withdrawn behavior is not usually marked by any indications of impulsivity or anxiety. For T.S., whose solitary passive withdrawn behavior did increase, his impulse control and likeability decreased. Conversely, for B.S. and M.P., their solitary-passive behavior decreased while their impulse control/likeability behaviors either increased or remained the same. This finding is supported by Fujiki, Brinton, Morgan et al. (1999) who observed a high correlation between increased solitary-passive withdrawal and decreased impulse control/likeability.

The most positive indicator of change following treatment was the reduction in solitary-active withdrawal behavior for several participants. As this type of withdrawn behavior produces the most negative social consequences, decreases in this behavior are highly positive. The fact that this type of behavior is highly noticeable may have made it easier for teachers to notice changes.

### **Alternative Factors Influencing Results**

It is also possible that changes in ratings were influenced by factors external to the children, such as characteristics related the raters themselves. Some of these factors are discussed in the following sections.

**Teacher bias.** One factor having the potential to influence outcomes was possible teacher bias. This may be particularly true for the children who demonstrated high degrees of problematic behavior like E.F., or considerable variability across the subscales, like M.W. and B.J. Although a child's behavior may have actually changed over the course of treatment, a

teacher's perception of that child's social behaviors might not change. Likewise, the teacher may have perceived changes where in fact none have actually occurred. For example, the instructions on the TBRS asked the teachers to compare the behaviors of each participant to the behaviors of their typical peers. Phillips and Lonigan (2010) however, observed that teachers were more likely to rate children based on the presence or absence of a behavior rather than how the behavior actually compared to typical performance. They further suggest that when a child's negative behaviors, such as those of E.F., demand more attention from the teacher than the positive behaviors, biased recall may occur. Conversely, a child whose behaviors demand less attention, like M.P., may receive more positive ratings for all areas of behavior regardless of actual performance. Although the rater may be asked to consider all of the child's behaviors when evaluating performance, the rater's personal experiences with the absence or presence of negative attention may strongly influence perceptions of performance.

In addition, Phillips and Lonigan (2010) compared teacher ratings to trained observer ratings of the same groups of children with LI. This comparison revealed that the teachers were more likely than the observers to rate these children with higher ratings of behavior problems. Phillips and Lonigan suggest that if it can be assumed that the observer ratings were more accurate, this disparity may be due to "differential expectations and comparisons rather than a genuinely higher frequency of behavior problems" (p. 386). For example, the teachers of the children enrolled in self-contained classrooms (E.F. and B.J.) may have different expectations than the teachers of the children enrolled in the mainstream classrooms. These differences in expectations may be reflected in the teachers' perceptions of behavior as indicated on the TBRS.

Considerable variability was observed across the subscales not only within participants, but also between participants. Although the rating scale methodology is widely used in assessing

social skills, it is recognized that informant bias is a potential problem. While in the larger study, multiple measures are used to measure changes in behavior following treatment, for this thesis, only the results from the TBRS are discussed. Without corroborating measures to support the findings, it is not possible to draw conclusions regarding the consistency of the raters themselves. That being the case, the behavior for some of these participants may or may not have changed as a result of treatment, but their teacher's bias may have influenced the interpretation and report of those behaviors. Further data analysis, which will provide additional views of the participants' behavior, should provide an indication of whether changes in teacher perception were related to changes in child behavior or were influenced by factors external to the child..

**TBRS as a measure of change.** A second factor potentially influencing the results was the ability of the TRBS to measure change for a relatively short period of time. In this study the TBRS was used as a general measure for change in behavior following treatment. While the psychometric properties of this instrument support its use as a reliable and valid tool to assess withdrawn and sociable behavior in children with LI, it may not have been sensitive enough to measure the changes in behavior for all children resulting from an intervention targeting only emotion understanding skills. Further analysis of these data, considering actual performance before, during, and following treatment; may be more revealing. For example, considerable time was spent in directly teaching recognition of facial expressions of emotions. External motivations were explored through discussions of cause-and effect and character intentions for events occurring within the context of children's stories. Data regarding levels and rates of acquisition for each of these specific skills could be enlightening, but are not considered in this study.

## Summary

This study examined the influence of a social communication intervention on teacher perceptions of withdrawn and sociable behavior in children with social communication difficulties. A third of the participants were reported to demonstrate general positive changes in behavior following treatment. In addition, half of the participants were reported to demonstrate a decrease in the most negative type of withdrawn behavior. These changes are suggestive of positive influences on social behavior resulting from intervention.

The results for the remaining participants were highly variable. This variability may be attributed to a variety of intrinsic and extrinsic factors. Factors internal to the child included individual variance in abilities and temperament. Some external factors that may have impacted the results include intensity of treatment and the individual adaptation to the intervention. Two influencing factors of particular concern were teacher bias and the ability of the TRBS to measure change.

This study is part of a much larger investigation. In the context of the larger study, additional instruments were used to measure some of these other changes in behavior following treatment. Taken as a whole, these measures are likely to provide a more representative picture of specific gains related to the intervention targeting emotion understanding. The measure examined in the current study, teacher's perception of behavior, makes an important contribution to this overall picture, but by itself, is somewhat limited. Thus, both positive and negative conclusions should be drawn with caution.



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## Appendix A

### Annotated Bibliography

Adams, C. (2001). Clinical diagnostic and intervention studies of children with semantic-pragmatic language disorder. *International Journal of Language & Communication Disorders*, 36(3), 289-305. doi: 10.1080/1cd.36.3.289.305

#### Purpose of the Study

The label of semantic-pragmatic language disorder (SPLD) has come under scrutiny as a result of the wide variety of behaviors these children may exhibit relating to language and social communication. These varying behaviors and difficulties complicate the establishment of effective principles for assessing, diagnosing and treating these individuals. Alternate labels such as that of pragmatic language impairment (PLI) have been proposed as a means for more appropriately classifying specific difficulties experienced by some children currently diagnosed with SPLD. The purpose of this study was to examine the relevance of current labels used, describe intervention carried out with these children, report on any possible clinical effects, and finally identify critical areas of clinical knowledge to be further explored in future research.

#### Method

*Participants.* Two children with a diagnosis of SPLD ages 10;3 (years;months) (participant A) and 7;3 (participant B) participated in this study. Participant A had typical hearing but a history of severe receptive language delay, as well as some attention and behavior problems. The goals in therapy for participant A included: giving adequate information to the interlocutor, being concise, sequencing of events in a narrative, use of prosody to convey meaning and interpretation of complex auxiliary and modal verbs. Therapy occurred three times a week for ten weeks in a mainstream classroom.

Participant B was an inpatient undergoing a psychiatric assessment at the time of referral. No neurological or medical disorder was identified but there was family history of communication disorder. His goals included: strengthening phonological awareness skills, strengthening memory skill (particularly phonological memory skills), over-rehearse memory tasks and phonological awareness tasks, retrieve lists of alliterative words and rhymes, and sequence ideas in narrative and conversation. Therapy sessions occurred weekly and were supported by additional practice and support at home.

#### Analysis and Results

For participant A, the pattern and proportion of conversational acts over time were relatively stable, indicating a small within participant variation. The mesh codes indicated a fairly talkative style which was higher following treatment than it was before treatment. Adams considered this to be a relatively mature style because participant A tended to provide “full and informative answers” (p. 297). Other codes indicated that pragmatic mismatches decreased from 15.79 to 7.7% at the second assessment. In participant B the results from the *Test of Word*

*Finding* indicated a significant increase in word finding skills, bringing the participant to within the typical range. In looking at his narrative skills, there were improvements in the number of prepositions used as well as number of cohesive devices used. There also were modest improvements in the use of conjunctions and grammatical structure. Although grammatical comprehension was not a direct focus of intervention, TROG scores indicated an improvement in comprehension. Qualitatively, the participant demonstrated increased confidence and willingness to converse with adults and peers. Some word-finding difficulties, verbal concept development and disfluency still persisted.

## Conclusions

Adams concluded that the assessment of pragmatic language usage, conversational analysis and narrative skills may be appropriate measures of improvement for children with SPLD. The diversity of behaviors of these children warranted different approaches to treatment. These findings supported the need for appropriate diagnostic classifications that support accurate communication among professionals and lead to appropriate interventions. Adams concluded that the adoption of the term PLI may be more appropriate than SPLD in some cases.

## Relevance to the current work

This study reflects the current debate regarding the selection and use of diagnostic classifications for children with LI, and examines the effectiveness of various measures of progress. Adams further acknowledged the need for evidence to support appropriate and effective measures of treatment for children with LI.

Adams, C. (2005). Social Communication Intervention for School-Age Children: Rationale and Description. *Seminars in speech and language*, 26(3), 181-188. doi:10.1055/s-2005-917123

## Purpose of the Study

There is a growing need to address the difficulties experienced by school-age children with social communication problems (SCP). While pragmatics is often considered to be synonymous with social communication, it is only one of four aspects of development that contribute to social communication. These four aspects are: social interaction, social cognition, pragmatics (verbal and nonverbal), and language processing (receptive and expressive). These four aspects form the framework for Social Communication Intervention (SCI). Using this framework, the author proposed an intervention promoting synergistic competence in all four aspects of social communication.

## Method

*Participants.* A school-age child with pragmatic language impairment (PLI) participated in the study. This case was used to illustrate how the intervention was applied. For this individual, his profile suggested impairment in all four aspects of social communication.

*Treatment.* There were 24 intervention sessions delivered over 8 weeks. Treatment included aspects of social interaction, social cognition and pragmatics. In addition, the speech-language pathologist collaborated with classroom personnel and parents, offering intervention strategies and advice.

### Analysis and Results

The participant showed significant gains in formal language tests of recall and sentence formulation, inferential comprehension, and narrative. While some pragmatic problems remained, his conversation manner shifted from a dominant style of interaction. Furthermore, parents and teachers reported better listening and comprehension skills, less tangential speech and more relevant language.

### Conclusions

The authors concluded that an SCI framework can provide guidance for intervention tailored to meet the specific needs of a child. This can be achieved by assessing an individual's capabilities within the framework of SCI. The author further suggested that these principal components of social competence are shared across populations and diagnostic boundaries, and can therefore be applied regardless of diagnosis.

### Relevance to current work

Children with LI, including children with PLI, experience difficulties with social communication. There is a need for accurate methods for assessing difficulties and for developing effective plans for intervention. This study presented one approach to addressing this difficulty. One benefit of such an approach would be its utility regardless of diagnosis.

Adams, C., Baxendale, J., Lloyd, J., & Aldred, C. (2005). Pragmatic language impairment: case studies of social and pragmatic language therapy. *Child Language Teaching & Therapy*, 21(3), 227-250. doi:10.1191/0265659005ct290oa

### Purpose of the Study

Children with pragmatic language impairment (PLI) share language characteristics with other groups such as autism and specific language impairment (SLI). They are thought by some to represent an intermediate group between those two conditions. While these children may initially present with language delay, they often appear to be fluent with near normal typical use of syntax by the school-age years. It is at the discourse and narrative level that their language difficulties become most apparent. These difficulties may include lack of organization of discourse and narrative, over-literal use of language, impaired understanding of social inference, limitations in social use of language and aspects of social cognition. These difficulties often hinder personal and educational progress.

While there has been an increased focus in the nature of diagnosis of PLI, there has not been much research regarding appropriate intervention strategies. While there are many published resources available for use in pragmatic instruction, the effectiveness of such measures have not yet been supported. In an effort to support the ethical demands of evidence-based practice, two case studies were presented to investigate the outcomes of social/pragmatic therapy in facilitating communication in children with PLI. Specifically, Adams, et al. hoped to identify whether or not treatment would result in changes in conversational participation, or more general effects of improving language processing skills as well as pragmatic ability.

## Method

*Participants.* Two children were described. Child A (9;9) had typical language processing skills but abnormal social communication. Child B (8;01) had significant language processing deficits and abnormal social communication. Both of the participants were part of a larger study of outcome measures of language interventions.

*Assessment Instruments.* A variety of assessment instruments were used, including the *British Picture Vocabulary Scales* (BPVS; Dunn et al. 1997), the *Test for Comprehension of Grammar* (TROG; Bishop 1983), *Raven's Progressive Matrices* (1976) the *Assessment of Comprehension and Expression* (ACE 6-11; Adams et al. 2001), the *Children's Communication Checklist* (CCC; Bishop 1998), the *Autism Diagnostic Interview* (ADI; Lord et al. 1994), and the *Analysis of Language Impaired Children's Conversation* (ALICC).

*Treatment.* Each child received sixty minutes of intervention three times a week for eight weeks. Findings from the initial ALICC conversations were used to plan intervention for each child.. Intervention consisted of (a) working directly with the child on formal pragmatic skills, and (b) training those who lived with the child to adapt their input to the child. This latter training focused on providing verbal scaffolding for the child within the contexts of home and school. The intended targets for communication adaptation included developmental readiness for social and language demands, adapting parent and teacher interactions to allow for an increase in positive social interactions, adapting curriculum demands to each child's level of communication abilities, teaching parents and teachers how to provide response elaborations familiar to the child, enabling flexibility in routines, and increasing understanding of social and verbal inferences. In addition, the treatment focused on increasing the child's vocabulary and self-awareness of emotions. This was done in view of increasing the child's insight into the emotions of others..

## Results

Child A demonstrated modest improvement in pragmatic skills in discourse as measured by the ALICC profile. Changes in conversational dominance and loquacity reflect a more interactive style of discourse after therapy. There was no measurable change in response or pragmatic difficulties. There was, however, a reduced tendency to wander off topic. Parent and teacher interviews revealed a better understanding of social situations and the emotions of others. Both his parent and teacher felt that he was easier to interact with in conversation.



Child B had a similar pre-therapy and post-therapy ALICC profile, but with an increase in loquacity and dominance. He demonstrated fewer verbal responses to adult initiations, and the therapist reported a continued need for prompting in order to apply social and conversation rules to novel situations. On formal language tests, however, He did show significant gains in recall and sentence formulation. He also showed moderate gains in inferential comprehension and narrative tests. Parent and teacher interviews revealed a report of improved listening skills, fewer tangents, and better conversations. They also observed an increase in relevant and reciprocal conversations and fewer disruptions.

### Conclusions

Both subjects showed measured improvements on certain trained and untrained communication skills. Complex profiles made it difficult to clearly identify contributory and inhibitory factors in the acquisition of skills. For child A, pragmatic intervention was successful in reducing conversational dominance, and better social integration was reported. Child B showed less progress in social interactional abilities. Having the characteristics of a developmental language disorder, in addition to his pragmatic language difficulties, child B had a greater potential to show improvement in formal language abilities. This was manifested in his improved ability to organize and formulate individual sentences, even though this skill was not explicitly addressed in therapy.

### Relevance to the current work

This study uses the explicit instruction of emotion as one of several key elements of intervention targeting social skills development. Further exploration of the benefits of this instruction may provide critical information for use in developing and implementing successful intervention for children with social skills deficits.

Adams, C., Lloyd, J., Aldred, C., & Baxendale, J. (2006). Exploring the effects of communication intervention for developmental pragmatic language impairments: a signal-generation study. *International Journal of Language & Communication Disorders*, 41(1), 25p. doi:10.1080/13693780500179793

### Purpose of the Study

Children with pragmatic language impairment (PLI) have difficulty with the use of language in a social context. While much has been written regarding the nature and diagnosis of PLI, there still remains a need for understanding what treatments are most effective in facilitating the acquisition and use of social communication skills in this population. The purpose of this study was to investigate whether or not there is a signal to indicate that treatment can bring about change in language and pragmatic skills for children with PLI.

### Method

*Participants.* Six children ages 6;0 to 9;11 participated. Each child was found to have difficulties related to pragmatic language, but did not qualify for a diagnosis of Autism.

*Assessment Instruments.* The following assessments were used: the *Conversation Assessment Task* (CAT) which is derived from Bishop's *Assessment of Language Impaired Children's Conversation* (ALICC), the Narrative and the Inferential Comprehension subtests of the *Assessment of Comprehension and Expression* (ACE 6-11; Adams et al. 2001), the Sentence Recall and Formulating Sentences subtests of the *Clinical Evaluation of Language Fundamentals Test* (CELF; Semel et al. 2000).

*Treatment.* The study design was an ABA reversal design wherein A1 was a baseline assessment, B was intensive treatment, and A2 was a withdrawal of treatment. The intervention phase lasted eight weeks. The intervention was individualized for each participant and was based on a framework for PLI consisting of social interaction, social cognition, language pragmatics, and language processing skills.

## Results

Because the intervention was individually developed for each child, a review of the results for conversational data required an understanding of each goal for intervention. For example, in talkative children, an intervention goal would have included turn taking. It would be expected that this would result in a decrease in loquacity, whereas for a reticent child, goals would have been directed toward increasing loquacity. For this reason, the direction of change on the conversation index had to be considered in light of the individual goal for intervention. For all of the children in the study, some predictions for change were met, while some predictions were not. In standard scores, all of the children showed changes on one or more of the subtests.

## Conclusions

All of the participants showed change in either conversation analysis or standardized language tests, or both. Some of these changes were substantial. The results across participants however, were quite variable. Some demonstrated strong signals for change, while others were questionable. The intended primary outcome measure, (ALICC) had mixed utility for demonstrating change. It was found to be the most useful in measuring pragmatic skills, for which there are few generally accepted measures. Unfortunately, it was not found to be reflective of the changes reported by parents and teachers. In addition, while it documented significant change in some children, it was not sensitive enough to indicate change for all children. Standardized tests of language skills and parent/teacher report were found to be invaluable secondary outcome measures, and for most children showed strong signals of change.

## Relevance to current work

These findings indicated that direct intervention for social communication difficulties does result in changes in behavior within a social setting. It was also found that parent and teacher report of observed changes in behavior are sensitive enough to be strong indicators of change.

Asendorpf, J. B. (1991). Development of Inhibited Children's Coping with Unfamiliarity. *Child Development*, 62(6), 1460. doi:10.1111/1467-8624.ep9202105173

### Purpose of the Study

Social inhibition involves a motivation to approach others tempered by a tendency to avoid unfamiliar peers. According to Asendorpf, different ways of responding to unfamiliar peers represent different coping styles. Asendorpf noted that prior research suggested a correlation between a tendency toward social withdrawal in younger children and internalizing difficulties found in older children. Asendorpf suggests that if the temperament of a young child predisposes that child toward inhibition, the child may increasingly demonstrate a style of social withdrawal during middle and late childhood. Based on the hypothesis that this association between inhibition and social withdrawal increases over development, three different types of solitude were investigated: solitary-active behavior, solitary-passive behavior, and inhibited behavior. The frequency and quality of parallel play and other social interaction activities were all analyzed as measures of alternative means for coping with the unfamiliar

### Method

*Participants.* Eighty-seven children (46 boys, 41 girls) participated in the study in conjunction with a larger longitudinal investigation (the Munich Longitudinal Study on the Genesis of Individual Competencies). At the start of the study, the participants ranged in age from 3-4 years old and were all enrolled in preschools in the Munich area. The first language for all participants was German. Each of the children participated in three dyadic play sessions at ages 4, 6, and 8 years of age.

*Assessment instruments.* The *Parental Inhibition Scale* was administered concurrently with the play sessions. The child's caregiver (in most cases the mother) answered 48 eight questions rated on a 7-point scale ranging from never to always. The play sessions were videotaped, and the children's behavior was coded at 15 s intervals using Rubin's *Play Observation Scale*. The behavior categories included: unoccupied solitary play, onlooking, parallel play, conversation, group play, adult orientation, aggressive exchanges and transitional behavior between categories.

### Analysis and Results

Data analysis indicated that inhibited behavior and adult orientation decreased with increasing age, and socially interactional behavior increased with age. Inhibited behavior became increasingly associated with solitary-passive behavior and lost its negative relation to parallel play.

Parent judgement of inhibition was assessed independently of the children's behavior in the play sessions. High correlations were found between the three parental inhibition judgements. These were aggregated to produce a mean parental judgement used to reflect the measure of dispositional inhibition in the children. Concurrent and predictive correlations with the aggregated parental judgment confirmed the correlational analyses within the play sessions.

Thirteen children with continuously high dispositional inhibition, as indicated by parental inhibition scores, were contrasted with thirty children who were continuously below-average in dispositional inhibition. When compared to the controls, the continuously inhibited children showed longer periods of inhibited behavior and solitary-passive activity. They also indicated shorter phases of social interactional behavior. A significant linear age x group effect for solitary-passive behavior indicated an increase in the length of solitary-passive activity for inhibited children over the controls.

A quadratic age x group effect was also revealed. The control children showed a general peak in parallel play at age 6, whereas the inhibited children showed a delay in this peak, and in fact spent particularly long times with parallel play at age 8. For social interactional behavior, a linear age x group effect and quadratic age x group effect were found. This effect indicated that periods of social interaction became longer for controls but not for inhibited children. In fact, inhibited children showed shorter periods of social interaction at age 8 than they did at age 6.

### Conclusions

The children in the control group demonstrated a developmental shift toward longer periods of social-interactional behavior. In inhibited children, however, a developmental shift toward longer periods of solitary-passive activity was seen. The inhibited children were less likely than the control children to move from inhibited behavior to solitary-passive behavior to social behavior. They were, in fact, more likely to retreat from social behavior and revert to inhibited behavior. When older inhibited children did engage in nonsolitary play, their play was still more passive than that of the control children.

### Relevance to current work

The motivation to engage in social interactions may be influenced by a multitude of factors. Asendorfs exploration of dispositional inhibition laid the foundational groundwork for exploring withdrawn and sociable behaviors in children.

Bedrosian, J., & Willis, T. (1987). Effects of treatment on the topic performance of a school-age child. *Language, Speech, & Hearing Services in the Schools, 18*(2), 158-167.  
doi:10.1044/0161-1461

### Purpose of the Study

Topic maintenance plays a central role in regulating sequences of conversation. It is also a means for coordinating conversations or actions with others. In order to maintain the flow of conversation, this skill requires active listening as well as comprehension. Topic performance also relates to the ability of the individual to initiate communication in order to express needs, feelings, and ideas. These are all vital elements in fostering the development and growth of interpersonal relationships. The purpose of this study, therefore, was to examine the effects of treatment on the topic performance of a school-age language-disordered child.

## Method

*Participants.* A five-year-old male enrolled in a regular kindergarten classroom participated in this study.

*Assessment Instruments.* The following assessment instruments were used: an informal Piagetian cognitive assessment (Gill 1979), two subtests (Processing Word and Sentence Structure and Oral Directions) from the *Clinical Evaluation of Language Functions* (CELF; Semel and Wiig 1980), the *Systematic Analysis of Language Transcripts* (SALT; Miller & Chapman 1983). A child-clinician language sample was analyzed for mean length of utterance (MLU), type token ratio (TTR), 14 grammatical morpheme analysis, and topic performance.

*Treatment.* A multiple baseline design across behaviors was employed. Two 30-min sessions were held weekly for approximately six months. Based on the topic performance results, treatment was based on two goals: increase the frequency of memory-related topic initiations, and increase the frequency of future-related topic initiations. General teaching procedures involved the use of instruction, modeling, and feedback regarding performance within a communicative context. The first five minutes of each session were audio recorded in order to probe for frequency of here-and-now, memory-related, and future-related topic initiations.

## Analysis and Results

The mean number of topic initiations during each 5 min probe was examined for each topic category. The presence or absence of toys was also indicated. During the pre-treatment phase an increasing rate of initiation for here-and-now topics was observed. Memory and future-related topics were only initiated in the absence of toys. During the first session of treatment, the child demonstrated an increase in the frequency of memory-related topics ( $M=1.52$ ,  $SD=1.47$ ). Unfortunately, the influence on performance by the presence of toys in some of the sessions during this phase of treatment confounded the results, making it difficult to interpret the effectiveness of treatment. During the second session of treatment, there was a decrease in memory-related topics, but an increase in future-related topics. In both treatment phases, the here-and-now topics remained stable. No toys were used in this phase of treatment, and therefore, it was possible to conclude that treatment had an effect in achieving goal number 2.

## Conclusions

Following treatment, the child demonstrated a significant increase in the variety of topics initiated. Post-treatment MLU indicated an increase in syntactic development, and an analysis of grammatical morphemes revealed mastery of additional morphemes as well. Treatment was approached in a functional manner, using a pragmatic framework, as opposed to traditional instruction and drill of formal language processes. These results suggested that this approach may be an effective alternative to the structure of traditional language intervention. Bedrosian and Willis were careful to caution against the use of toys and other materials in assessing the pragmatic skills of children. As this study indicated, the absence of toys may have had an effect on the increased frequency of memory-related topic initiations.

### Relevance to current work

There is a need for evidence supporting the effectiveness of pragmatic intervention for school-age children with language impairment. This study is one of only nine published articles reporting pragmatic interventions for school age children. This study supported the effectiveness of one approach to addressing communication competence in school-age children, while raising more questions regarding effective assessment and treatment for this population. The need for more research on this topic is vital to the development of effective treatment for children with language impairment.

Boucher, J., Lewis, V., & Collis, G. (2000). Voice processing abilities in children with autism, children with specific language impairments, and young typically developing children. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 41(7), 847-857. doi:10.1111/1469-7610.00672

### Purpose of the Study

Although it is recognized that individuals with autism have difficulty in processing social and nonverbal information, the extent and degree of this difficulty has not been clearly defined. The central purpose of this study was to replicate and extend earlier findings on voice processing in autism in order to increase understanding of this aspect of the impairment..

### Method

*Participants.* 19 children with autism and 19 children with specific language impairment (SLI) took part in all four experiments. These children were drawn from two schools in the UK which focused on treating children with communication difficulties including autism. An additional group of 19 typically developing language-matched children took part as a control group in experiments 3 and 4.

*Procedures.* Four experiments were conducted. Experiment 1 assessed familiar voice-face matching and matching nonsocial objects and sounds. For voice-face matching, 21 photographs of highly familiar and distinctive individuals were presented. A separate audiotape was prepared for each individual photographed. For sound-object matching, 21 photographs and audio recordings of familiar objects were used. As each cassette recording was played, the child was asked to indicate the matching photograph. The purpose for these assessments was to replicate earlier findings on familiar voice-face matching in children with autism, assess the specificity voice-face matching impairment, and clarify whether or not a cross-modal matching impairment might contribute to this impairment. The predictions were that children with autism would be impaired at matching familiar voices and faces, and that voice-matching would be more impaired in children with autism, than the control group in sound-object matching.

Experiment 2 assessed familiar voice recognition. Eighteen audiotapes were prepared for each individual child. Nine of the tapes were voices of people familiar to the child (teacher, classroom assistants, and classmates). The remaining nine voices were unfamiliar to the child.

The child was asked to indicate which voices were familiar or unfamiliar by placing the tapes in the appropriate boxes. The purpose of this assessment was to confirm earlier findings using a larger group of participants and a simplified procedure. The prediction was that the children with autism would show impaired recognition of familiar voices.

Experiment 3 assessed the ability to discriminate between unfamiliar voices. The test stimuli consisted of twenty sets of three tapes. In each set, two tapes contained the target voice (the same person talking, but on different topics). The third tape contained a foil voice. This was a different person of the same gender talking. All forty voices were unknown to any of the participants and consisted of a variety of ages, dialects and ethnicities. The target voice was presented to the child on a cassette recorder. The child was then asked to listen to the second voice and the foil voice on separate headphones and to indicate which voice was the same as the first voice played. The purpose of the assessment was to fill in a gap in the data set on voice processing in autism. The prediction was that there would be no impairment in voice discrimination.

Experiment 4 assessed vocal-facial affect matching and vocal affect naming. The test stimuli consisted of eighteen audiotapes of an actress expressing the emotions of happiness, sadness, disgust, fear, anger, and surprise. In addition, three duplicate photos of a woman expressing each of the six emotions were also used. Each tape was played and the child was asked to label the emotion. The child then selected the corresponding photo. The purpose of the assessment was to confirm previous findings, and to assess the possible role of cross-modal matching impairment as a cause or contributory cause of voice-face affect matching impairment. The prediction was that children with autism would be impaired on vocal-facial affect matching and vocal affect naming.

### Analysis and results

In Experiment 1 the children with autism were not impaired relative to children with SLI. In addition, the children with SLI showed larger within subject differences than the children with autism, and performed better on sound-object matching. It was believed that cross-modal matching impairments would effect voice-face matching. If this were the case, it was believed that performance on social and nonsocial matching tasks would be correlated. This was not the case for children with autism and suggests that children with autism do not have cross-modal matching impairment. For children with SLI however, there is some indication that cross-modal processing impairments might have been present.

In Experiment 2, the total numbers of voices correctly recognized did not differ significantly between the groups. Because the two groups performed similarly to each other, the prediction that familiar voice recognition would be impaired in the children with autism compared to SLI was not supported.

In Experiment 3, the groups did not significantly differ. The prediction that the children with autism would show no impaired voice discrimination was supported. The children with SLI also showed unimpaired voice discrimination compared to the control group.

In Experiment 4 analysis revealed a significant main effect for group and a significant group by condition interaction. The main effect of condition was not significant. Pairwise comparisons of the main effect means across groups indicated that the group with autism and the typically developing children did not perform differently on the task, but that the group with SLI performed significantly worse than the other two groups. The children with SLI actually performed better on the naming task than they did on the matching task. In contrast, the typically developing children performed better on the matching task than they did on the naming task. Pairwise comparisons among the groups revealed that on the naming task, the children with SLI did significantly worse than both the groups with autism and the typical group. It was predicted that children with autism would have impaired voice-face affect matching and vocal affect naming. This prediction was partially supported because the children with autism did perform worse than the typically developing children on the affect naming task, but they also performed better than the children with SLI on both tasks. There was no clear evidence supporting cross-modal matching impairment in children with autism. The performance of children with SLI on this experiment, coupled with their performance on Experiment 1, however, did indicate cross-modal difficulties for this group.

### Conclusions

The findings for this study were a surprise. It was assumed that when language ability was controlled, that children with SLI would not have impairments in processing socioemotional stimuli. Based on this assumption, and the evidence regarding impairments in processing socioemotional stimuli in individuals with autism, it was predicted that children with autism would be more impaired than children with SLI. The children with autism did in fact show impairment relative to typically developing children on the test of affect matching, but it was the performance of children with SLI that was surprising. This group performed similarly to the children with autism on the tests of familiar voice-face identity matching and familiar voice recognition. They also performed significantly worse than the autism group and the mainstream children on the tests of voice-face affect matching and vocal affect matching. These results indicated that children with SLI may have previously undetected difficulties in processing vocally expressed affect. The authors suggest that cross-modal deficits may be also have been a contributing factor in their poor performance on the affect matching task.

### Relevance to current work

This article made important contributions to our understanding of the difficulties that children with LI experience in identifying emotion conveyed by prosody, as well as possible cross-modal deficits. It demonstrated the need for further exploration of the social processing difficulties experienced by children with LI. These findings provide useful information for the future development of effective language and social skills intervention for children with LI.

Brinton, B., Fujiki, M., & Higbee, L. (1998). Participation in cooperative learning activities by children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 41*(5), 1193-1206.

### Purpose of the Study



Children with specific language impairment (SLI) experience language difficulties which may hinder their access to academic learning. In an effort to expose these children to higher models of communication from their peers, there has been a shift from the self-contained model for instruction to a more inclusive and less restrictive environment in the general education classroom. Unfortunately, not all learning models employed in the classroom offer the necessary support or appropriate peer interaction opportunities for children with SLI. Cooperative learning environments seem to offer the most promising possibilities for peer inclusion and academic learning. In this setting, the children work together in small groups to help each other learn. The assigned tasks often require the achievement of a joint goal. The communicative demands of such a task however, may inhibit children with SLI from contributing to the group. The purpose of this study was three-fold: first, to discover to what extent children with SLI would collaborate verbally in a cooperative work task with two typically developing peers, second to discover to what extent children with SLI would collaborate on the nonverbal work activity in a cooperative group task, and third to identify individual patterns of interaction displayed by children with SLI as they work in a cooperative task.

## Method

*Participants.* Fifty-four children participated in the study, between the ages of 5 and 12 years. The children were divided into eighteen triads consisting of one target subject and two partners. Six children (three boys and three girls) with SLI, six children (three boys and three girls) chronologically age matched (CA) to the children with SLI, and six children (three boys and three girls) with similar language scores (LS) to the children with SLI comprised the target subjects. Two partners for each participant were then selected. These partners were matched for gender and chronological age with the target child.

*Assessment Instruments.* Each triad session was video recorded. Verbal and nonverbal behavior was coded and analyzed at 15 s intervals in terms of collaborative or non-collaborative behavior.

*Procedure.* Each triad was asked to build a periscope and decorate it however they chose. They were provided with an example and the necessary materials to accomplish the task. During the task, an adult was in the room, but offered minimal suggestions or help only when asked.

## Analysis and results

Overall collaboration, verbal collaboration and non-verbal collaboration by groups (SLI, LS, CA) were analyzed. Individual performance of each child was also examined. The mean percentage of collaborative intervals was achieved by calculating the percentage of 15 s intervals in which each child was collaborative. Comparisons were then made between the target children and their partners. For the triads with SLI, differences between subgroups were identified. Post hoc testing indicated that the target subjects with SLI participated in collaborative activity less than children in the partner-1 subgroup. The difference between the target subjects and the

partner-2 group did not reach significance, but a notable trend was observed. No statistically significant differences were found between subgroups for the LS and CA triads.

Inferential analysis failed to yield a significant difference between subgroups for collaborative verbal activity in the SLI, CA or LS triads. A similar procedure was employed to examine the nonverbal collaboration. Differences were discovered in the triad with SLI. The children with SLI were less actively involved in the task of building the periscope than either partner. Three of the children with SLI never collaborated on the nonverbal activity. No significant differences in performance were found between the LS and CA subgroups. All typically developing children contributed to building the periscope.

### Conclusions

The authors observed that within the structure of the task, the CA and LS groups exhibited high levels of cooperation as well as balanced levels of interaction between the participants. If subjects worked off task, they generally did so collaboratively. The interactions for the triads with participants with SLI, on the other hand, were highly variable. Based on the language deficits experienced by individuals with SLI, it was expected that they would experience difficulty with verbal collaboration for this task. It was further expected that these participants would compensate for these difficulties by assuming a larger share of the nonverbal collaboration activities. This was not found to be the case. Based on the availability of materials, expressed interest in the task, and individual performance on formal language assessments, Brinton et al. concluded that not only linguistic demands but also social demands limited the inclusion of these participants on the cooperative task.

### Relevance to current work

This study provided further insight into understanding the complex nature of the social difficulties often experienced by children with SLI. Most surprising was the idea that not only do language demands play a role, but also the possibility that deeper social demands may underly peer exclusion. That being the case, these children are not only in need of intervention for language structure and function, but also effective intervention which addresses social competence as well.

Brinton, B., Fujiki, M., & McKee, L. (1998). Negotiation skills of children with specific language impairment. *Journal of Speech, Language, and Hearing Research*, 41(4), 927-940.

### Purpose of the Study

While it is clear that children with specific language impairment (SLI) have difficulties with social competence, the behaviors that may contribute to these difficulties are not well understood. Brinton, Fujiki and McKee investigated the way that children with SLI performed in a task that demanded negotiation and mutual decision making in a group context. Specifically, they examined how frequently children with SLI participated in the interaction, the number of

negotiation strategies they produced, the self or other construal of their strategies, and the developmental level of those strategies.

## Method

*Participants.* Fifty-four children between the ages of 5 and 12 participated. The children were divided into eighteen triads consisting of one target subject and two partners. Six children (three boys and three girls) with SLI, six children (three boys and three girls) chronologically age matched (CA) to the children with SLI, and six children (three boys and three girls) with similar language scores (LS) to the children with SLI comprised the target subjects. Two partners for each subject were then selected. These partners were matched for gender and chronological age and were controlled for familiarity.

*Assessment Instruments.* As a basic indicator of a child's participation in the interaction, the number of utterances produced by each child in the triad during the negotiation sequences was counted. To examine negotiation strategies, an analysis system based on the interpersonal negotiation strategy (INS) model was devised (Beardslee, Schulz, & Selman 1987; Selman 1981). In this case, communicative acts were examined for orientation and level of development. Orientation consisted of determining whether a child intended to assert his or her own agenda (other-transforming) or comply with the agenda of the partner (self-transforming). In identifying strategy level, communicative acts were assigned to levels based on exemplars that typify each level. For Level 0 this included strategies that were "primarily impulsive and physical behavior to get what one wants or to avoid harm" (Yeats, Schultz, & Selman, 1991 p. 372). Level 1 included strategies that represented "attempts to either control or appease the other person... ordering or telling or... obeying or giving in" (Yeats et al. 1991 p. 372). Level 2 involved "reciprocal... trades, exchanges, and deals" (p. 372) to either influence or capitulate to another's choice. Reasoning and bartering would be included at this level. Level 3 reflected a collaborative intent and desire to reach a mutual consensus (Yeats et al 1991). Communicative acts that did not represent negotiation strategies were categorized as "other".

*Procedure.* In a prior activity, each of the children in a triad earned three poker chips. At the start of this activity, a cellophane covered box containing different treats was presented to each triad. Each treat was assigned a cost ranging in price from four to nine chips. The participants were instructed to work together in combining chips and making a selection. After delivering the instructions, the investigator remained in the room, but away from the children while they completed the task.

## Analysis and results

The total number of utterances for each child in a triad was counted and the means were calculated. A one-way ANOVA was used to compare performance across the target subject, partner 1 and partner 2 sub groups in the triads from the three groups (CA, LS, SLI). These differences were not statistically significant.

Communicative acts that reflected self-transforming strategies were excluded from further analysis due to the small number produced (21 by all participants in the triads). To

analyze the communicative acts that reflected other-transforming strategies, the percentage of strategies produced by each participant at each strategy level was calculated. None of the participants produced any level 0 strategies, so this level was dropped from the analysis.

To determine if there were differences in performance between subgroups (target subject, partner 1 and partner 2) and/or negotiation level, a two-way ANOVA (subgroup x level) with repeated measures on level was performed. In triads with target participants with SLI, analysis revealed a significant main effect for subgroup, and for level. The interaction between variables was not significant. A post hoc analysis indicated that the subgroup with SLI produced a significantly smaller percentage of strategies than either of the two partner subgroups. Examination of the data revealed that as the level of complexity for negotiation strategies used were increased, the incidence of strategy productions decreased. It also revealed that the children with SLI produced fewer strategies than their partners and that this pattern was strong at Level 2 and strongest at Level 3.

In the CA triads, comparisons of the mean percentage of strategy production were not statistically significant. The production of strategies at the various levels of negotiation did not differ significantly. Also, the interaction between variables was not significant. In the LS triads the only significant difference was the level of negotiation strategies produced. Neither the main effect for the group, nor the interaction between variables, was significant.

The mean negotiation levels in triads with SLI target subjects were compared using a one-way ANOVA. This revealed that there was a significant difference between groups. The Scheffe post hoc test indicated that both partner subgroups produced significantly higher mean negotiation levels than the subgroup with SLI. In triads with CA and LS participants the differences between subgroups was not significant.

## Conclusions

The children with SLI had less impact on negotiation. Although they varied in the way they negotiated within their triads, they produced fewer negotiation strategies, and their mean strategy level was significantly lower than those of their partners within the triads. In fact, they produced no level 3 strategies at all. In looking at the developmental level of the strategies produced, the children with SLI performed most similarly to those in the LS triads. Unlike the LS subgroup however, the participants with SLI were not able to gear their strategies to specific situations and partners..

## Relevance to current work

The children with SLI experienced a different quality of interaction than the other participants. While this study focused on just one aspect of social competence, it may be an indication of broader social communication difficulties experienced by children with LI. It appeared that children with LI are not able to use language and social skills that are commiserate with that of their typical developing peers. The ability to employ flexibility and age appropriate communication interaction strategies plays an important role in social competence. For this

reason, further research is needed to understand and implement effective treatment for individuals with language and pragmatic based social communication difficulties.

Brinton, B., Fujiki, M., Spencer, J., & Robinson, L. (1997). The ability of children with specific language impairment to access and participate in an ongoing interaction. *Journal of Speech, Language, and Hearing Research*, 40(5), 1011-1025.

### Purpose of the Study

The ability to access an ongoing interaction is important to the social development of children. Unfortunately, children with specific language impairment (SLI) frequently fail to gain access to peer interactions. It seems that even when they do gain access they are not guaranteed inclusion and integration into the group or play that follows. The purpose of this study was to examine the attempts to access ongoing interactions by children with SLI as compared to their language age-matched (LA) and chronological age-matched (CA) peers.

### Method

*Participants.* Fifty-four children between the ages of 5 and 12 participated in the study. The children were divided into eighteen triads consisting of one target subject and two partners. Six children (three boys and three girls) with SLI, six children (three boys and three girls) CA to the children with SLI, and six children (three boys and three girls) LA to the children with SLI comprised the target subjects. Two partners for each participant were then selected. These partners were matched for gender and chronological age to the target child and were randomly labeled as partner 1 and partner 2.

*Assessment Instruments.* Each interaction was transcribed from the point at which the target child was introduced to the partners. Verbal measures included the number of verbal utterances produced by each child in the triad, and the number of utterances addressed to each member of the triad. The point at which each child successfully accessed the interaction was determined by the point at which the subject took a verbal or nonverbal turn in the play that was accepted by one or both of the partners. When an access episode occurred, the examiner calculated the time in minutes and seconds from the time of initial introduction to a partner's first positive response to the entry child's bid. The samples were then divided into a pre-access segment and a post-access segment. The number of utterances produced by each triad in each of these periods was calculated. Partner inclusion bids involved the number and type of verbal and nonverbal bids the partners addressed to the entry child during the pre-access segment. The target participant's responses to these bids were also coded. For analyzing participation in a group activity, each child's activity was examined in 15-sec intervals from the time the child was introduced into the triad. The following categories were used to describe the activity: standing away or hovering, sitting down with the triad, individual play at the table, group collaborative play, individual play away from the table, and other. For this analysis, both verbal and nonverbal behaviors were examined.

*Procedure.* Each participant was first informed that they would be talking to two other children for approximately twenty mins. Data collection began once the two partners were in

the room. The investigator asked one partner to sit in a chair to the left of a table and the other to sit in a chair to the right of the table. The investigator sat in a chair between the two. The investigator then explained that she was trying to find out what toys children their age like to play with. Various age-appropriate toys were then presented, and the partners were encouraged to interact and play with the toys. Once the partners were engaged with each other, the investigator explained that she was going to do some work at her desk, and withdrew behind a cardboard barrier that blocked line of site. After ten mins, a second investigator brought the target child into the room. From the door, the first investigator introduced the target child to the partners. The subject was then left to access the interaction. The investigator ended the interaction approximately twenty mins later.

### Analysis and results

Sixteen of the eighteen target subjects were successful in gaining access to the interaction. All but one of these subjects used either verbal communication or a combination of verbal and nonverbal communication to gain entry. The one subject who accessed nonverbally was a CA subject. The two children who failed to gain access both had SLI. SLI5 did gain access after 4 min 27 s, but did not sit down at the table. In fact, he only remained in close proximity to the partners for 2 min and 3 s. Otherwise, he wandered around the room, played with objects other than those presented to the partners, and repeatedly attempted to initiate interactions with the investigator.

Access time varied widely (8 s to 14 min 8 s). The CA subjects accessed in an average of 3 min 44 s (*SD* 5 min 15 s). The LS subjects accessed in an average of 4 min 40 s (*SD* 5 min 37 s). The SLI subjects accessed in an average of 5 min 38 s (*SD* 2 min. 45 s). More revealing than the group means, was the observation that nine of the twelve CA and LS subjects accessed in less than 3 min, none of the SLI subjects accessed in this time, and those that did gain successful access required between 3 min. 46 s and 9 min 2 s.

A one-way ANOVA was used to compare the number of bids addressed to the entry children from their partners. Differences between the groups were not significant. The participants who failed access were excluded from this analysis. SLI 1 however, did receive 4 partner bids, whereas SLI 6 received no partner bids.

In analyzing the number of utterances produced before and after access in the CA triad, a two-way ANOVA with repeated measures on point of access was performed and revealed a significant difference in the number of utterances produced by subject type. There was also a difference between number of utterances produced prior to and following access. The interaction between variables was not significant. Post hoc comparisons indicated that the target CA participants produced significantly fewer utterances than those in the partner 2 group. All three subject types (target, partner 1, partner 2) produced more utterances following access than they did prior to access. A similar analysis for the LS triad revealed no significant differences subject groups. As with the CA triads, the number of utterances produced following access in the LS triads was greater than the number of utterances produced prior to access.

In analyzing the number of utterances produced before and after access in the triads with a target child with SLI, SLI 1 and SLI 6 were dropped because they failed to successfully gain access. Using similar analysis measures as described above, significant differences were revealed in the number of utterances produced by subject type, and in the number of utterances produced prior to and following access. The interaction was not significant. Post hoc comparisons indicated that the target children produced significantly fewer utterances than either partner.

In analyzing the number of utterances addressed to each member of the triad, the CA and LS groups showed no consistent pattern regarding who was addressed more or less. The number of utterances addressed to each member was not significant, the number of utterances directed to the subjects prior to access was not significantly different to the number following access. The interaction between variables was also not significant.

Once again in analyzing the number of utterances addressed to each member of the SLI triads, triads SLI 1 and SLI 6 were dropped for failure to gain access. Unlike the other two types of triads, in this case the participants with SLI were addressed less than either partner. A two-way ANOVA with repeated measures on point of access revealed a significant difference between the numbers of utterances addressed to each of the three subject types. In addition, the number of utterances addressed to the different subject types prior to access was significantly less than those after access. The interaction between variables was not significant. Post hoc comparisons indicated that the children with SLI were addressed significantly less often than either partner.

## Conclusions

The children with SLI experienced significantly more difficulty in accessing ongoing interactions, than their CA and LS peers. Those who did gain access, required longer time to do so, and even after gaining access, some returned to non-collaborative behaviors. In spite of their age, the children with SLI experienced difficulties similar to those observed by Craig and Washington (1993). This indicates that these access difficulties do not diminish with age. The findings also indicated that the bids offered by the partners did not have a direct result on the participants' success or failure in achieving access.

## Relevance to current work

The failure to access social interactions may inhibit a child's language, social, and academic development. The difficulty with access does not resolve with age. It is, therefore, imperative that effective intervention is developed and implemented for children with language impairment.

Brinton, B., Spackman, M., Fujiki, M., & Ricks, J. (2007). What should Chris say? The ability of children with specific language impairment to recognize the need to dissemble emotions in social situations. *Journal of Speech, Language, and Hearing Research*, 50(3), 798-811. doi:10.1044/1092-4388(2007/055)

## Purpose of the Study

Many children with specific language impairment (SLI) demonstrate poor social competence. Emotional competence plays an important role in social competence. This includes the ability to regulate and express emotion appropriately. Personal and social display rules regulate the appropriate display or dissemblance (hiding) of emotion. This study examined the ability of children with SLI to judge when an experienced emotion should be concealed in keeping with social display rules.

## Method

*Participants.* 19 children, ages 7;9 to 10;10 with SLI, and 19 gender and chronologically age matched typically developing children participated in this study.

*Assessment Instruments.* Each hypothetical situation was followed by a comprehension question, an emotion question, a dissemblance question, and a display rule question. Participant's responses were categorized as to whether or not they dissembled or displayed the emotion.

*Procedure.* The participants were presented with ten hypothetical social situations. These situations elicited five emotions: happiness, sadness, fear, anger, and disgust. In each of these situations, a gender neutral character, Chris, experienced an emotion that should be dissembled for social purposes. Each hypothetical situation was followed by a comprehension question, and emotion question, a dissemblance question, and a display rule question.

## Analysis and results

A random effects logit models were constructed to determine the existence of significant differences across language (SLI vs. typical developing), gender differences, emotions indicated, and answers to the display rule questions. For all scenarios, the children in both groups answered the comprehension questions appropriately. The typical children selected more dissemble and fewer display strategies than the children with SLI. Mad, sad, happy and disgust situations were more frequently dissembled than the fear situations. Sad situations most frequently elicited dissemblance responses, followed by fear, happy, disgust and mad. The female participants indicated dissemblance rules more frequently than the male participants.

## Conclusions

Although the children did not differ significantly in their judgements of the social display rules governing these situations, the children with SLI indicated significantly fewer incidences in which the emotions should be hidden.

## Relevance to current work

These results suggest that children with SLI differ from their typical peers in emotional understanding as it relates to the impact of emotion expression on communication interactions



with others. Emotional and social competence go hand in hand. It is important to support the development of both competencies. Further research is needed to understand this relationship, and to provide effective intervention for children with LI.

Coplan, R., K., R., Fox, N., Calkins, S., & Stewardt, S. (1994). Being alone, playing alone, and acting alone: Distinguishing among reticence and passive and active solitude in young children. *Child Development*, 65(1), 129-137. doi:10.2307/1131370

### Purpose of the Study

Solitary behaviors were once grouped together under terms such as behavioral solitude, social withdrawal and nonsocial play. Recent investigations, however, have brought to light the consideration that certain types of these behaviors have distinct characteristics, motivating factors and social impacts for the individual. For this reason, Coplan et al. examined the heterogeneity of social solitude and investigated the possible psychological mechanisms that underlie these subtypes of behavior.

### Method

*Participants.* Forty-eight preschool age children (20 males and 28 females) participated in this study. These children ranged in age from 49 to 62 months ( $M = 54.63$  months,  $SD = 3.91$  months), and were part of a larger sample of 61 children participating in a longitudinal study.

*Assessment Instruments.* Behaviors in the play sessions were videotaped and coded in ten-second intervals with Rubin's (1989) *Play Observation Scale*. Mothers of the participants completed the *Colorado Temperament Inventory*.

*Procedures.* The participants were assigned to 12 quartets of unfamiliar same-sex peers. Each session consisted of five sections: unstructured free play, a clean-up task, show-and-tell speeches, a ticket-sorting task, and unstructured free play.

### Analysis and results

Ten-second intervals were coded for social participation including: unoccupied/onlooking behavior, solitary play, parallel play, conversation, and group play. These intervals were also coded for cognitive quality of play (functional, dramatic and constructive play, exploration and playing games with rules). Reticent behavior was computed using the proportion of coding intervals spent in unoccupied and/or onlooking behaviors. Solitary passive behavior included solitary-exploratory and/or solitary-constructive play. Solitary-active behavior involved solitary-functional and/or solitary-dramatic play. Anxious behaviors were computed from intervals containing automanipulatives and crying. Intervals containing time spent hovering at a short distance from other children's social interaction were also coded. Any off-task behaviors during the clean-up task were coded as off-task-unoccupied and off-task-disruptive. The speeches were coded for duration of speech and percentage of time spent actually speaking. The ticket-sorting task was coded similarly to the clean-up task, for off-task

behaviors. Two aggregate variables, wariness and impulsivity were computed using coded behaviors observed in the clean-up, speech and ticket-sorting episodes.

In the first play session, reticence was significantly and negatively correlated with solitary-passive behavior, whereas, in the second play session, it was significantly and negatively correlated with solitary-active behavior. Reticent behavior was found to be significantly and positively correlated with hovering behavior, but solitary-passive and solitary-active behaviors were not. Anxious children were found to be engaged in more reticent behavior than the non-anxious group. The two groups did not differ in terms of solitary-passive and solitary-active behavior. Reticent behavior during free play was significantly and positively associated with the wariness aggregate variable and significantly and negatively associated with the impulsivity aggregate variable. Solitary-passive and solitary-active behaviors were not found to be associated with either aggregate variable. Maternal ratings of shyness were found to be significantly and positively associated with the production of reticent behavior, but not for solitary-passive or solitary-active behavior.

### Conclusions

These results, in addition to research contributed by others, successfully identified the presence of multiple and independent forms of solitude in preschool-age children. It was also determined that children exhibiting anxiety were more likely to exhibit reticent behaviors. It was found that this was not necessarily the case for solitary-passive and solitary-active behaviors. The stability of reticence across time and setting, coupled with the maternal shyness ratings also implicates reticence as a “trait” rather than a “state”. Hovering behavior however, was found to be associated with reticence. This was surprising in that hovering is considered to be evidence of a motivational “state” conflict between a desire to approach and a desire to avoid socially novel experiences.

Passive withdrawal was not found to be associated with anxiety, social wariness, shyness or impulsivity. This appears to support the assumption that the behavior is a result of disinterest in engaging in a social interaction. Although solitary-active play only occurred in 3% of the time devoted to free play, it was highly stable across the sessions and was associated with maternal ratings of impulsivity.

### Relevance to current work

This study successfully identifies and describes three types of withdrawn behavior, and discusses possible underlying motivations for those behaviors. In the current work, these three types of withdrawn behaviors are observed in children using *the Teacher Behavior Rating Scale* (TBRS) in order to measure possible observed changes in social competence following a prescribed intervention.

Coplan, R. J., & Rubin, K. H. (1998). Exploring and Assessing Nonsocial Play in the Preschool: The Development and Validation of the Preschool Play Behavior Scale. *Social Development*, 7(1), 75-91.

## Purpose of the Study

Traditionally, researchers have used observational methods to assess social behaviors in children. This process is frequently cumbersome and time consuming, particularly when working with large sample sizes. Additionally, these studies are usually conducted with unfamiliar communication partners. Teacher rating scales have recently been used in lieu of this process, and have proven to be more time efficient. They also provide information regarding nonsocial behaviors in a familiar setting. Unfortunately the ones in use at the time of this study did not differentiate between the subtypes of solitary behavior. The primary purpose of this study is to develop and validate a teacher rating scale for use in assessing social and nonsocial free play behaviors in preschool age children.

## Method

*Participants.* For Study 1, thirty-nine preschool children between the ages of 37 and 59 months ( $M = 49.18$ ,  $SD = 5.58$ ) participated.

For study 2, three hundred thirty-seven preschoolers (173 males and 164 females) ranging in age from 33 to 68 months ( $M = 51.56$  mos.,  $SD = 9.07$ ) participated. The thirty-nine participants from Study 1 were included in this group.

*Assessment Instruments.* For Study 1, free play behaviors were coded using Rubin's (1989) *Play Observation Scale* for both social participation and cognitive quality of play. Following the procedure outlined in Coplan et al. (1994), aggregate variables were created for: reticent behavior, solitary-passive behavior, solitary-active behavior, social play, and rough play. The *Preschool Play Behavior Scale* (PPBS) was completed by at least two teachers per participant.

For Study 2, teachers completed the PPBS and the *Preschool Behavior Questionnaire* (PBQ; Behar & Springfield, 1974) for all children in the sample. Parents of the children completed the *Colorado Child Temperament Inventory* (CCTI; Buss & Plomin 1984, Rowe & Plomin, 1977).

*Procedure.* For Study 1, the PPBS was completed by the teachers for each participant and compared to observed behavior of that participant. Over a period of approximately three months, each participant was observed on ten separate occasions for a series of twelve ten-s intervals during free play per occasion. This generated a total of 120 ten s coding intervals per participant.

## Analysis and results

For Study 1, a series of correlations was computed between teacher-rated and observed reticent, solitary-passive, solitary active, social play and rough-play behaviors in order to assess the construct validity of the PPBS. Moderate to high correlations were found between the observed and teacher-rated behaviors. For discriminant validity, correlations were computed between teacher ratings of reticent, solitary-passive and solitary-active behaviors and

observations of other non-corresponding nonsocial behaviors. Only 2 of the 18 correlations were found to be significantly and positively associated.

For Study 2, the data from the various subscales of the PPBS were subjected to exploratory factor analysis,. Results indicated five factors (social play, solitary-passive behavior, rough-play and solitary-active behavior) with Eigenvalues greater than 1.0 and accounted for 75.8 percent of the variance. These confirmed the assumed theoretical associations between the items. The correlations between the five computed subscales were moderately inter-related. The factor structure and item loadings for both males and females were consistent with the full sample results, but a series of independent groups of t-tests resulted in a significant difference between males and females on the rough-play subscale, with males rated as exhibiting these behaviors more frequently than females.

Convergent and discriminate validity were established by analyzing the relations between the PPBS subscales and the CCTI and PBQ. As a result, reticent behavior was found to be positively correlated with shyness and emotionality and negatively associated with sociability. Solitary-active behavior was positively associated with activity level and negatively associated with shyness. Social play was associated with shyness. Rough-play was positively associated with activity level and negatively associated with attention span. Solitary-passive behavior was not significantly associated with any child temperament characteristics. The correlation between reticent-wary behavior and internalizing problems was significantly greater than the correlation between internalizing problems and solitary-passive and solitary-active behavior.

## Conclusions

For Study 1, these results support the validity of the PPBS as an assessment for the nonsocial behaviors of young children, and suggest an acceptable level of discriminant validity for the nonsocial items of the PPBS. For Study 2, these results also provided support for the use of the PPBS as a reliable and valid alternative, or supportive accompaniment to behavioral observation in the assessment of social and nonsocial play forms in young children. These findings also provide further insight into the social functioning of preschool children in a familiar environment.

## Relevance to current work

This investigation of a preliminary version of a teacher-based report of social and nonsocial behaviors in children supports the utility of such an instrument for research purposes. It contains many principles considered in the construction of the *Teacher Behavior Rating Scale* (TBRS), as used in the current work.

Craig, H., & Washington, J. (1993). Access behaviors of children with specific language impairment. *Journal of Speech and Hearing Research*, 36(2), 322-337.

## Purpose of the Study

Access to an established social interaction is a fundamental social skill. Prior to this study, there was little information regarding the ability of children with specific language impairment (SLI) to access social interactions. The purpose of this study was to characterize the access behaviors of children with SLI and to compare those behaviors to those of children with typical language skills.

## Method

*Participants.* Thirty-eight children were selected to participate in the study, including 13 participants and 25 partners. Of the 13 participants, five were children with SLI (three boys and two girls ages 7-8), four (two boys and two girls) were chronologically age-matched to the children with SLI, and four (two boys and two girls ages 3-4) were matched for comparable language skills to that of the children with SLI. The partners were selected to match the participants in gender and age and were previously unacquainted with the participants.

*Assessment Instruments.* Each triad session was videotaped, and the language samples were transcribed. Each sample was segmented into access episodes and identified as successful or unsuccessful. Success was identified when the subject participant took an un-rejected turn in the play and at least one partner was aware of it. Subject and partner behaviors were scored as task-related or task-unrelated.

*Procedure.* Each of the participants was paired with two partners to form a triad. The partners were introduced into a room containing building sets. The partners were encouraged to engage in a cooperative play interaction. After approximately ten min, the subject participant was introduced to the partners, but not instructed in a role for interaction. The examiner then left the room.

## Analysis and results

Analysis involved comparing successful and unsuccessful access, as well as probing for specific behaviors and relationships. There was also a partner/subject comparison and a language status comparison. Most of the subjects were successful in gaining access, including all of the children with typical language. Three subjects (all SLI) failed to gain access. These children also had lower receptive skills than the two children who did gain access. The three who did not access had receptive language scores from the PPVT-R placing them below the 10<sup>th</sup> percentile. The two who did gain access, also achieved scores placing them higher than the 10<sup>th</sup> percentile. A Pearson product-moment coefficient of correlation revealed a moderately strong inverse relationship between receptive skills on the PPVT-R and the duration of the access episode.

Of the ten participants who gained access, six did so in less than one min. The remaining four required between 1 min. 55 sec to 16 min. 5 sec. to gain access. Those who took longer included one participant with SLI, two age-matched participants, and one language-matched participant. All of the subjects produced more than one task-related behavior prior to achieving access, and all but one (a language matched participant) used both verbal and non verbal forms.

## Conclusions

The children with SLI who did not successfully access the interactions said and did very little that was task-related, and failed to approach the partners. These children were observed to watch the partners play, or secure a toy and engage in solitary play. In these children, utterances were either self-focused or had a negative quality. Evaluative comments made by partners in the triads containing unsuccessful access episodes indicated that the partners expected the subjects to join the play and were surprised when they did not. This resulted in negative evaluations made by the partners about the subjects. All of those who failed to gain access had lower receptive language skills.

## Relevance to current work

As discussed in the current work, social competence requires the ability to observe the behavior of a conversation partner, and to regulate personal behavior in accordance with those observations. According to Craig and Washington, this may be a factor in successful access to peer interactions. Based on this assumption, explicit instruction regarding the interpretation of a partner's non-verbal communication, as well as interactional rules in social contexts would be appropriate targets for effective intervention in social communication.

Denham, S. (Ed.). (1998). *Emotional development in young children*. New York: Guilford Press.

## Purpose of work

In this book, Denham explored the development of emotion in toddlers and preschoolers. This involved a description of the development of capacities to express, understand, and regulate the emotions of self and others in young children.

## Summary

Denham introduced the three primary component skills of emotional competence: expressing, understanding and regulation. Denham explained that these skills are interdependent and complex. The development of emotional competence is dependent on multiple factors including developmental changes in the child, individual differences, intrapersonal contributions, and interpersonal contributions. The link between emotional and social competence is also important, but complex. For Denham this information is critical to understanding what occurs when disturbances in the development of emotional competence occur, what effects this may have on long term functioning and development.

The aspects of emotional competence change during development. For this reason, the patterns of development for the expression of both basic and more complex emotions in toddlers and preschoolers were described. Emotional expressiveness in children differs in the intensity, frequency and duration as well as their own predominance of positive versus negative emotions. Their use of pure versus mixed expressions, the speed at which they become emotional, and their level of understanding of their own emotions as well as those expressed by others also contribute to their expression of emotion in complex ways.

Emotion understanding in toddlers and preschoolers includes their growing knowledge of internal states and causes of behavior. This plays an important role in gaining an understanding of the consequences of emotions. Young children also need to develop patterns of use for emotion language. Preschoolers learn to test and refine their understanding of emotions while talking with important people in their lives. Within these contexts, the children are able to express personal emotions, gain feedback about their emotions, and learn the causal relationship between events and their emotions. For this reason, their use of emotion within the context of the family is a critical component to their emotional development and can lead to a more sophisticated understanding of the emotional experiences of others.

### Conclusions

Denham concludes that parents and other adults who interact with young children can effect the vital development of emotional competence in young children. This may be done through their own emotions, the ways they react to the children's emotions, and the ways they teach about emotions. Children who learn to understand their emotions better, display more positive emotions and regulate more negative emotions have been observed to be more "socially able", meaning they are better liked by their peers, and respond more appropriately to the emotions expressed by their friends.

### Relevance to current work

Emotion experience, regulation, and understanding play an important role in social competence. Providing adequate models, language, and support for the expression and regulation of emotion has a significant impact on the development of emotional competence in young children. In the current work, emotion recognition was a primary intervention target in a treatment program developed to improve social competence in school age children with language impairment.

Denham, S., von Salisch, M., Olthof, T., Kochanoff, A., & Caverly, S. (2002). Emotional and social development in childhood. In P. K. Smith & C. H. Hart (Eds.), *Blackwell handbook of child social development* (pp. 307-328). Malden, MA: Blackwell Publishers.

### Purpose of work

In this chapter, Denham, von Salisch, Olthof, Kochanoff and Caverly outlined how social development tasks change during childhood, and discussed how the social issues at each age help to clarify the role of emotion at that stage. Because the social tasks and emotional competencies for each stage impact social relationships, the aspects of emotional competence involved in social interaction and relationship building in parents, peers and friends were also described. In addition, the contribution of emotional competence to social competence was detailed and evaluated across developmental stages.

### Summary

As the nature of adaptive social functioning changes with development in a child, the ways in which emotions are managed also changes. With increasing age, it becomes ever more important for children to learn to manage the expression, understanding, and regulation of emotion.

Parents help their children in the development of their emotions by becoming primary attachment figures, providing a model for emotional behavior and introducing cultural rules for experiencing, expressing and regulating emotion. Parents may also have a negative impact on emotional development. This arises from varying abilities to understand their children's emotional appraisals, childrearing values, willingness or ability to share conveyed emotions, and inter-adult conflicts and resolutions.

Peers contribute to development by "creating group cultures with their own norms and values" (p. 318). Denham et al. (2002) cite studies that indicate that children who improve emotion regulation tend to show higher social competence among their peers. This is especially true for highly negative children. Grade school-age children learn to adopt an "emotional front" (p. 318), and apply differing strategies to achieve these fronts. The relationship between emotional expressiveness and social competence becomes context dependent.

Social and emotional competences are inter-related in complex ways. In order to develop competence in both, it is critical for a child to develop competence in experiencing emotion, expressing emotion, and understanding emotion..

#### Relevance to current work

The complex and interdependent relationship between social and emotional competence suggests a need for incorporating the three components of emotional competence into a treatment program that targets social competence. These three components include experiencing emotion, expressing emotion, and understanding emotion. In the current work, the treatment was designed to increase the child's recognition of emotions felt by self and others.

Dollaghan, C., & Kaston, N. (1986). A comprehension monitoring program for language-impaired children. *Journal of Speech and Hearing Disorders*, 51(3), 264-271.  
doi:10.1044/1092-4388

#### Purpose of the Study

According to Dollaghan and Katston, clinical observation reveals that children with language comprehension difficulties fail to evaluate their own understanding of what is said, and thus they fail to request clarification. Dollaghan and Katston developed and implemented a treatment program designed to help children with language impairment improve their comprehension monitoring skills.

#### Method



*Participants.* Four children with language impairment (LI) ages 5;10 to 8;2 participated in this study.

*Assessment Instruments.* A comprehension monitoring probe task was administered at each session. This was a simplified adaptation of a task proposed by Flavell et al. (1981). A comprehension monitoring generalization probe was administered prior to the first baseline session, at the tenth session (either a baseline session or a treatment session) and following a three to six week post-treatment interval.

*Treatment.* A multiple baseline across subjects design was used. Each subject participated in a pre-determined number of baseline sessions. After the baseline phase, during which a probe task was administered each time, the treatment program began. Each participant met individually with the examiner. The 10-11 treatment sessions occurred three times a week for 20 mins. The treatment occurred in four phases. In phase one, the participants were taught to identify, label and demonstrate behaviors that were associated with an active orientation to listening. In the second phase, they were instructed on how to identify and respond to an ineffective message due to “signal inadequacies” (p. 266). In the third phase, they were taught to react to inadequacies in the content of the message. These included: inexplicit, ambiguous, and physically impossible commands. In the final phase, they were taught to respond to messages that were above their comprehension level. These included: unfamiliar lexical items, excessive length of the message, or excessive syntactic complexity of the message. The treatment program continued until the subject succeeded in meeting all of the behavior criteria. Once this occurred, the treatment was withdrawn, and the probe task was administered in three sessions, in order to assess short-term maintenance of skills. A non-treatment interval of 3-6 weeks occurred, and then a probe task was again administered in order to measure long-term maintenance of skills.

### Analysis and results

The participants’ responses to probe commands were scored according to accuracy and presence or absence of a “functional verbal query” (p. 267). The functional verbal queries were also recorded verbatim by the examiner. All of the participants responded correctly to the probe tasks’ two adequate commands, and no functional verbal queries were used. The subjects did, however, increase their queries for inadequate commands. These queries occurred in a pragmatically appropriate manner. This increase in queries for the inadequate commands was rapid and co-occurred with the implementation of the comprehension monitoring treatment phase. These results were maintained after the 3-6 week non-treatment phase.

### Conclusions

These results suggest positive effects of a treatment program targeting comprehension monitoring in children with LI. Anecdotal evidence from teachers and parents suggest a generalization of these skills to home and classroom settings. Further research is needed to strengthen these findings and generalize them to larger populations.

### Relevance to current work

This study is one of a few published studies demonstrating the effectiveness of treatment programs targeting social competence in school-age children with LI. The results suggest that children with LI can develop skills that will help them become more competent in conversation with appropriate intervention. Comprehension monitoring is a valuable tool for this population to acquire, but it reflects just one aspect of social competence. More research is needed to explore other aspects of social competence in children with LI and effective methods for intervention.

Durkin, K., & Conti-Ramsden, G. (2007). Language, social behavior, and the quality of friendships in adolescents with and without a history of specific language impairment. *Child Development*, 78, 1441-1457. doi:10.1111/j.1467-8624.2007.01076.x

### Purpose of the Study

In this study, Durkin and Conti-Ramsden examined the relationship between language abilities and friendship in children with specific language impairment (SLI) and their typically developing peers.

### Method

*Participants.* One hundred twenty adolescents with SLI (ages 15;2 to 16;9) and one hundred eighteen typically developing adolescents (ages 15;2 to 16;7) participated. Of these participants, 72.55 % were male and 27.5 % were female.

*Assessment Instruments.* Socio-emotional functioning was assessed by the *Strengths and Difficulties Questionnaire*-self report (SDQ; Goodman, Meltzer, & Bailey, 1998). Quality of friendships was measured using the Friendships and Social Relationships section of the *Social-Emotional Functioning Interview* (SEF-I; Howlin et al., 2000).

*Procedure.* Each of the participants was assessed using the above instruments which were included as a part of a wider battery. The parents of the participants were interviewed separately.

### Analysis and results

The participants with SLI demonstrated more overall behavioral and emotional difficulties. Hierarchical regression was conducted on the friendship index. The results indicated that once nonverbal IQ was controlled for, prosocial skills and behavioral and emotional difficulties contributed significantly to the quality of friendship, but expressive language and literacy skills and SDQ measures were found to have an even greater effect on friendship quality.

Typically developing peers had significantly better quality friendships than individuals with SLI. In fact, the majority reported typical social interactions. For the participants with SLI, over half (65) experienced good quality relationships, but there was a wide range of quality level, and overall a poorer quality level of relationships was found. There was also a weak correlation identified between prosocial behavior and quality of friendship in this group.

Some longitudinal data on early assessments were available for the SLI participants. From this information, early predictors for quality of friendship in adolescents were found. Significant differences were found between good and poor friendship groups on early language and non-verbal skills. After adjusting for nonverbal IQ, receptive language functioning at age 7 was identified as a significant predictive factor in friendship quality at age 16. In fact, for every one standard score increase, the risk for poor outcome at age 16 was reduced by 7%. While emotional and behavioral difficulties (taken at age 7) tended to be associated with SLI, they were not predictive of friendship quality at age 16.

### Conclusions

Concurrent language measures were associated with friendship quality. In addition, longitudinal analyses indicated that early language difficulties were predictive of poor friendship quality in adolescence. This was not necessarily the case for early emotional and behavioral difficulties. Durkin and Conti-Ramsden suggest that the difficulties experienced by children with SLI may result from an inability to infer the perspectives of others as well as possible differences in knowledge or beliefs. For this reason, they suggest that focusing on structural language skills may not be enough.

### Relevance to current work

Based on these findings, there is an indication that social difficulties are highly related to language difficulties and that early language difficulties may be good predictors of poor social function, and that these difficulties are long-term. The long-term difficulties reported here, make finding and implementing appropriate and effective intervention for social communication in school age children an urgent matter. Further research is needed to better understand this relationship, and what forms of treatment will be most effective in addressing social communication difficulties.

Ford, J., & Milosky, L. (2003). Inferring emotional reactions in social situations: Differences in children with language impairment. *Journal of Speech, Language, and Hearing Research, 46*(1), 21-30. doi:10.1044/1092-4388(2003/002)

### Purpose of the Study

Previous research has indicated that difficulties in comprehending discourse for children with language impairment (LI) may be related to impaired abilities to make inferences. The purpose of this study was threefold. The first was to determine whether or not children LI have difficulty identifying facial expressions, the second was to determine whether or not they can integrate knowledge regarding facial expression with other information (verbal and/or visual) in order to make a social inference, and third, whether or not these inferencing difficulties are modality-specific.

### Method

*Participants.* Twenty-four kindergarteners participated in this study. Twelve of the children, six boys and six girls ages 5;4 to 6;4, were diagnosed with LI. Twelve of the children, six boys and six girls ages 5;4 to 6;2 were typically developing children (CA).

*Assessment Instruments.* The following assessment instruments were used to determine eligibility: The *Clinical Evaluation of Language Fundamentals-Preschool* (CELF-P; Wiig, Secord & Semel, 1992) and the nonverbal subtests of the *Kaufman Assessment Battery for Children* (KABC, Kaufman and Kaufman, 1983).

*Materials used.* Four picture cards containing drawings of facial expressions depicting the emotions happy, surprised, mad and sad were used. Nine stories for each emotion were used. These included three different versions of three general types of stories. Each story was depicted in three modalities: visual, verbal, and visual/verbal. The characters in the visual versions of the stories did not have faces in order to remove facial cues of emotion.

*Treatment.* Three experimental tasks were used: production of emotions depicted by facial expressions, comprehension of emotion terms, and inferencing. For the production task, the picture cards depicting the four emotions were presented one at a time to the participant. The examiner asked, "How does the child feel?" This task was administered first in order to determine what labels the participant associated with each expression. For the comprehension task, the participants were again presented with the pictures cards and asked to indicate what emotion was represented. Following each response, the cards were collected and redistributed in random order. This was done for each of the emotions depicted. For the inferencing task, the participants were again presented with the picture cards, as well as the story. The participant was asked to indicate which emotion was felt in each story. Responses to each trial were audio recorded and scored as correct/incorrect.

## Analysis and results

Both the CA and LI participants were able to correctly label happy, sad, and mad. For surprised, only ten out of 12 CA participants and 8 out of 12 LI participants spontaneously produced the correct label. After providing the correct label to the participants, all participants responded correctly on the second trial. On the comprehension task, both the CA and LI participants were able to correctly indicate the facial expression requested. The children with LI were less successful than their CA peers in inferring emotional reactions. Children with LI were more likely to infer emotions of a different valence (53%) than the CA children (19%). In the CA group, only three of the children produced these valence errors. In the group with LI, all of the children produced at least one valence error. With regard to modality, the children with LI had more difficulty than their peers on all tasks, and the audio/visual presentation produced more correct inferences for both groups. There was however, no significant difference between groups for modality. Regression analysis revealed that language ability had a significant effect on inferencing ability, even when the task was visual rather than verbal.

## Conclusions

The children with LI produced more errors than their typically developing peers. The results indicate that children with LI differed from their typically developing peers in processing social information. More specifically, Ford and Milosky conclude that children with LI have greater difficulty "integrating emotion understanding with event context in order to make an accurate social inference" (p. 27).

#### Relevance to current work

This study suggests the importance of incorporating not only recognition of facial expression of emotions, but also in making inferences about the conversation partner's emotional state. In the current work, this has been incorporated into the treatment program.

Fujiki, M., Brinton, B., Hart, C., & Fitzgerald, A. (1999). Peer acceptance and friendship in children with specific language impairment. *Topics in Language Disorders, 19*(2), 34-48.

#### Purpose of the Study

This study was part of a larger project examining the social skills of children with specific language impairment (SLI). The purpose was to examine how well school-age children with SLI were accepted by their peers, and the number of friends they had in their classes.

#### Method

*Participants.* Eight children, seven girls and one boy, ages 6;1 to 10;7, with SLI participated in the study. Of these children, five were in the same classroom, and three were in classrooms that did not contain other participants.

*Assessment Instruments.* In order to assess peer acceptance and friendships, peer sociometric rating and reciprocal friendship nomination procedures were used.

*Procedure.* Administration of the assessments occurred three months into the school year, in order to allow for social relationships to develop within the classrooms. First graders were presented with pictures of each of their classmates. Second graders were read a list of their peers by the examiner, and the fourth and fifth graders were given a list to read for themselves.

For the peer socio-metric rating assessment, the first graders were asked to assign the pictures of their classmates to one of three categories. Each category was labeled with happy, sad or neutral faces. The examiner identified each category as, "children you like to play with a lot", "children you 'kinda' like to play with", or "children you don't like to play with" respectively (p. 39). The younger children were asked to point to one of the three categories after each name was read to them by the examiner. Fourth and Fifth graders circled the faces which best represented their feelings toward each of the classmates on the list. Scoring involved a 1-3 scale, with 1 being not liked, 2 being 'kinda' liked, and 3 being liked a lot.

For the reciprocal friendship nominations, each child was asked to identify their three best friends in the classroom. First graders pointed to the pictures of their friends, second

graders pointed to the names of their friends, and fourth and fifth graders circled the names of their friends.

In order to avoid an immediate discussion between classmates regarding the peer ratings, an additional activity was used immediately following the administration of the assessment. This involved shooting a foam basketball into a basketball hoop with a shot clock.

#### Analysis and results

For the socio-metric rating assessment, each participant received an over-all peer rating score and a same-gender peer rating score. Class means for each of these were also calculated. For the reciprocal friendship nominations, each child's list of friends was compared to those of the other children in the class. This was used to calculate individual scores. The number of times a child was named, regardless of reciprocity, was also determined.

Data for each of the SLI participants were presented individually. For SLI 1, a 7;0 year-old girl in the first grade, both her overall peer rating and her same-gender peer rating fell more than two standard deviations below the mean. She also had no reciprocal friendships.

SLI 2 was a 6;1 year-old girl in the first grade. Both her overall peer rating and her same-gender peer rating were slightly higher than the class means. She had one reciprocal friendship with SLI 4. She was also named as a friend by one additional child. She received ratings of 3, 3, and 2 by her named best friends.

SLI 3 was a 6;3 year-old girl in first grade. Like SLI 2, both her overall peer rating and her same-gender peer rating were higher than the class means. She had two reciprocal friendships, including SLI 4. She was rated a 3 by all three of her named best friends.

SLI 4 was a 6;6 year-old girl in the first grade. Both her overall peer rating and her same-gender peer rating were higher than the class means. She had two reciprocal friends, SLI 2 and SLI 3. She was also named as a friend by four other children.

SLI 5 was a 6;2 year-old boy in the first grade. His overall peer rating fell near the class mean, but his same-gender peer rating fell .5 standard deviations below the class mean. He did not have a reciprocal friend. He received ratings of 3, 3, and 2 from the children he named as his best friends.

SLI 6 was a 7;6 year-old girl in the second grade. Her peer scores placed her above the mean for her classroom. She had no reciprocal friends and was one of three, in a classroom of 19, who was not named as a best friend by any other child in the classroom. She received ratings of 3, 3, and 2 by the children she named as her best friends.

SLI 7 was a 9;1 year-old girl in the fourth grade. Her overall peer rating was one standard deviation below the class mean, and her same-gender peer rating was almost a standard deviation below the class mean. She had no reciprocal friendships and was not named by anyone in the classroom as a best friend. In her classroom of 20, she was one of three with a low

acceptance rating (-1 SD). She received ratings of 2, 1, and 3 by the children she named as her best friends.

SLI 8 was a 10;7 year-old girl in the fifth grade. Her overall peer rating was one standard deviation below the class mean. While still somewhat low, her same-gender peer rating was closer to the class mean. She had no reciprocal friendships and was one of two children in a classroom of 22, not named by anyone in the classroom as a best friend. She only named two children as her best friends. She received a rating of 3 from each of them.

## Conclusions

Classmate ratings placed three of the eight children with SLI a standard deviation or more below their class means. This was lower than would be expected for the general population. When considering same-gender peer ratings, only one child was rated more than a standard deviation below the mean, with one child approaching one standard deviation below the mean. While many children demonstrated acceptable peer acceptance, this did not necessarily translate to the formulation of reciprocal friendships. On the friendship measure, five of the eight were not named by any child in the classroom as a best friend. This is also lower than would be expected for the general population. In looking at all four classrooms, 12 of the children (15%) were not named by anyone as a friend. Of those not chosen, five were children with SLI. Three of the SLI participants (SLI 2, SLI 3, and SLI 4) had reciprocal friendships with another child with SLI.

## Relevance to current work

Previous research indicates that children with SLI function differently within social contexts than their typical developing peers. This study demonstrates the effects those differences have on peer acceptance and the formation of friendships. Children with SLI have greater difficulty finding peer acceptance and forming reciprocal friendships. According to Fujiki, Brinton, Hart and Fitzgerald, “friendships provide support in an essential context for scaffolding language and interactional skills” (p. 46). For this reason, it is necessary to identify effective treatment targets and methods that will improve the ability of a child with SLI to function competently within social contexts.

Fujiki, M., Brinton, B., Morgan, M., & Hart, C. (1999). Withdrawn and sociable behavior of children with language impairment. *Language, Speech, & Hearing Services in Schools*, 30(2), 183-195.. doi:10.1044/0161-1461

## Purpose of the Study

Fujiki, Brinton, Morgan and Hart used the *Teacher Behavior Rating Scale* (TBR; Hart & Robinson, 1996) to compare dimensions of withdrawal and sociability in children with language impairment (LI) to that of their typically developing peers.

## Method

*Participants.* Forty-one children with LI and forty-one chronologically age and gender matched typically developing children (CA) participated in this study. For each of these groups, twenty of the children (8 girls and 12 boys) were between the ages of 5;5 and 8;2. Twenty-one of the children (10 girls and 11 boys) from each group were between the ages of 10;2 and 12;10.

*Assessment Instruments.* TBRS was used to evaluate social skills in both groups of participants.

*Procedure.* The classroom teachers for each of the participants (both LI and CA) were asked to complete the TBRS based on their observations of the participants withdrawn and sociable behavior in a school setting.

### Analysis and results

The mean ratings across each item in the subtypes of withdrawn and sociable behavior of the TBRS were calculated for each participant. While most of the participants were not rated as demonstrating solitary-active withdrawal, those who did, received relatively high ratings. The results also indicated that boys with LI produced higher levels of solitary-active withdrawal than the CA boys or any of the girls (10 out of 23). Only six other children across all the other subgroups were rated as demonstrating this behavior.

For reticent behavior, children with LI were rated significantly higher than their typical peers. Twenty-five of the thirty-two children with LI were in fact more than a standard deviation above the overall mean for the typical children. Males were found to show higher levels of solitary-passive withdrawal than females. In spite of this, many children of both genders were rated as never demonstrating this behavior.

In the sociability ratings, the typical children were rated as having greater impulse control and prosocial behaviors than the children with LI. None of the other main effects or interactions was significant.

### Conclusions

The greatest difference observed between groups was increased reticent behavior in the children with LI. Although solitary-active behavior was generally low, the boys with LI who demonstrated this behavior also demonstrated high levels of the behavior. Solitary-passive withdrawal was not particularly high for either group, but did contribute to varying profiles of social functioning. While the CA children who demonstrated high solitary-passive withdrawal did not show other types of withdrawal or low levels of sociability, almost all of the children with LI who demonstrated high levels of solitary-passive withdrawal showed other types of withdrawal combined with poor ratings of sociability. Teachers also observed that the children with LI had greater difficulty with sociability behaviors, including those that did not directly relate to language ability.

### Relevance to current work



As in the current work, the TBRS was used to measure teacher perception of social functioning. Results indicated that children with LI are at risk for difficulties in social competence. These difficulties can be further characterized as increased withdrawn and reduced sociable behavior. The results of this study and others indicate that language difficulties do not always account the level of social difficulties observed in children with LI.

Fujiki, M., Spackman, M., Brinton, B., & Hall, A. (2004). The relationship of language and emotion regulation skills to reticence in children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 47*(3), 637-646. doi:10.1044/1092-4388(2004/049)

### Purpose of the Study

This study was conducted to investigate the relationship between emotion regulation, language ability and reticent behavior in children with specific language impairment (SLI) and their typically developing peers.

### Method

*Participants.* Forty-three children with SLI (twenty-three boys and twenty girls), and forty-three gender and chronologically age-matched typically developing peers participated in this study. The participants from each language group were divided into two age groups. The first age group consisted of eleven boys with a mean age of 7;6 ( $SD = 9$  months) and ten girls with a mean age of 6;6 ( $SD = 12$  months). The second age group consisted of twelve boys with a mean age of 10;0 ( $SD = 8$  months) and ten girls with a mean age of 10;4 ( $SD = 10$  months).

*Assessment Instruments.* Two teacher report forms were used. The *Emotion Regulation Checklist* (ERC; Shields and Cicchetti, 1997, 1998) was used to measure emotion regulation. The *Teacher Behavior Rating Scale* (TBRS; Hart and Robinson, 1996) was used to measure reticence. The *Comprehensive Assessment of Spoken Language* (CASL; Carrow-Woolfolk, 1999) was used to measure language ability.

*Procedure.* Forty-three classroom teachers representing 42 different classrooms completed measures of emotion regulation and reticence. Each teacher completed questionnaires for two children (one participant with SLI and one typical classmate). The CASL was administered in the school setting by two second-year graduate students.

### Analysis and results

Regression analysis indicated that ERC and CASL scores were significant predictors of reticence scores. Each predictor alone was not found to be a significant predictor of reticence.

### Conclusions

Reticence is commonly observed in children with SLI. It is often associated with peer rejection in childhood. Teacher response indicated that children with SLI appeared more “fearful and reserved in approaching other children, were unoccupied in the midst of activity and stared at other children without participating” (p. 644). In contrast, few of the typically developing children were reported to display this behavior. Additionally, using the ERC, teachers reported that children with SLI did not elevate emotion appropriately in interactions. Based on these and previous findings, Fujiki et al. conclude that children with SLI may actually “demonstrate a wider deficit that involves emotion regulation and possibly other aspects of emotional and social competence” (p. 644).

#### Relevance to current work

As in the current work, the TBRS is used to measure the observed social behavior of children with language impairment (LI) as well as that of their typically developing peers. The results from this study support the understanding that social and emotional development are the result of a complex relationship between the two. In addition, language difficulties may only compound this interaction of development. Children with LI are in need of effective intervention developed to support not only language development, but social and emotional competence as well.

Fujiki, M., Spackman, M., Brinton, B., & Illig, T. (2008). Ability of children with language impairment to understand emotion conveyed by prosody in a narrative passage. *International Journal of Language & Communication Disorders*, 43(3), 330-345. doi:10.1080/13682820701507377

#### Purpose of the Study

Fujiki, Spackman, Brinton, and Illig examined the ability to understand emotion conveyed by prosody in children with language impairment (LI).

#### Method

*Participants.* Nineteen children with LI (11 girls and 8 boys) ages 8;0 to 10;10 years of age and their gender and chronological age-matched peers participated in this study.

*Assessment Instruments.* The assessment materials included a seven-sentence passage read with the expression of four emotions: happiness, anger, fear or sadness.

*Procedure.* This study was part of a larger study involving four tasks designed to examine various aspects of emotion understanding in children with LI. For this experiment, the participants were presented with four recordings of a narrative read by actors expressing emotion. These emotions were: happy, sad, angry, and afraid. The participants were asked to indicate which emotion the speaker expressed.

#### Analysis and results

Based on responses to the four recordings, each participant received a score from 0 (no correct responses) to 4 (all correct responses). As expected, the children with LI were less successful than their typically developing peers in identifying the emotion expressed. Happiness was observed to be the easiest emotion for the children to identify, while fear was the most difficult. There was no significant interaction between group and emotion type.

### Conclusions

These findings indicate that children with LI have difficulty in understanding emotion conveyed by prosody. These findings support previous reports that children with LI may have difficulty with emotion understanding.

### Relevance to current work

Children with LI had difficulty understanding emotion conveyed by prosody. This suggests a need for the development and implementation of interventions designed to target emotion understanding and social competence for school-age children with language impairment.

Gertner, B., Rice, M., & Hadley, P. (1994). Influence of communicative competence on peer performance in a preschool classroom. *Journal of Speech and Hearing Research, 37*, 913-923.

### Purpose of the Study

Gertner, Rice and Hadley examined the relationship between social status and linguistic competence in three groups of preschool-aged children. These three groups included children with speech and/or language impairments (S/LI), those learning English as a second language, and those who are developing language normally (ND).

### Method

*Participants.* Thirty-one children (19 boys and 12 girls) participated in this study. Of these children, nine were in the typical group, ten were in the ESL group and twelve were in the group with S/LI.

*Assessment Instruments.* Language measures included: the *Peabody Picture Vocabulary Test-Revised* (PPVT; Dunn & Dunn, 1981), the *Reynell Developmental Language Scales-Revised* (Reynell and Gruber, 1990), The *Goldman-Fristoe Test of Articulation* (GFTA; Goldman and Fristoe, 1986) and a spontaneous language sample from which the mean length of utterance (MLU) and mastery of grammatical morphemes were determined.

*Procedure.* After an orientation activity, each participant was presented with pictures of all their classmates and asked to point to whom they liked to play with in dramatic play. The participant was asked to do this three times, with the indicated picture being removed after each

selection. Dramatic play in this instance referred a specific classroom activity that the children easily identified with. This process was repeated with the examiner asking each child to point to children with whom they did not like to play.

### Analysis and results

Group differences were statistically significant for positive nominations only. The typical children received the most positive nominations, over the groups with ESL and S/LI. Multiple regression analyses were used to determine the relative contributions of age, IQ and language skills on predicting positive nominations. The results indicated the PPVT-R as the best predictor of positive nominations.

### Conclusions

Because the children with the lowest language abilities had the fewest number of positive nominations, Gertner et al. concluded that these results indicated a correlation between language ability and social acceptance among peers. In fact, language ability was a better predictor of peer status than age or IQ.

### Relevance to current work

These results indicated that children with S/LI experience lower social status than their typical developing peers. While these results do indicate a correlation between language functioning and social status, caution should be used in assuming a cause-and-effect relationship between the two. More recent research has indicated that social difficulties are not always comparable to language ability, and that the social difficulties experienced by children with LI may arise in addition to language difficulties. For this reason, there is a need for the development of effective intervention targeting not only language functioning, but social functioning as well.

Geurts, H. M., & Embrechts, M. (2008). Language Profiles in ASD, SLI, and ADHD. *Journal of Autism & Developmental Disorders*, 38(10), 1931-1943. doi:10.1007/s10803-008-0587-1

### Purpose of the Study

It was the intent of Guerts and Embrechts to determine whether or not there was a specific Autism Spectrum Disorder (ASD) language profile and whether or not this profile was dependent on age. If there was such a profile, Guerts and Embrechts hoped to explore how the profile was related to the language profiles of other disorders such as ADHD and SLI. In this report, two studies were conducted.

### Method

*Participants.* In the first study, twenty-nine children ages, 7-14 years, with ASD were compared to twenty-nine gender and age matched children with ADHD and also with gender and age matched typically developing children (TD). In the second study, twenty-eight children,

ages 4-7, with ASD were compared to twenty-eight gender and chronologically age-matched children with SLI and twenty-eight gender and chronologically age-matched typically developing children.

*Assessment Instruments.* The *Children's Communication Checklist-2* (CCC-2; Bishop 2003) was used to obtain the language profile. The *Preschool Behavior Questionnaire* (PBQ; Smidts & Oosterlaan 2005) was used to determine if ADHD characteristics were a possible predictor for the CCC-2 score.

*Procedure.* Parents for each of the participants in both studies completed the CCC-2 based on the observed behavior of each participant. Parents for the participants in Study 2 also completed the PBQ.

### Analysis and results

Group differences for the CCC-2 scales were analyzed using MANOVAs with group (three levels) as a between factor. For Study 1 the groups differed from each other on seven of the ten scales. All three groups of children demonstrated difficulty with the scales for use of context, non-verbal communication and social relationships. The group with ASD had the greatest difficulty, followed by the children with ADHD and then the TD children. Both the groups with ASD and ADHD demonstrated difficulties on the scales for coherence, inappropriate initiation, and interests. On the use of context scale, the group with ASD and the group with ADHD did not differ from each other, but did differ from the TD group. The group with ASD differed from the other two groups on the nonverbal communication scale, and showed deficiencies on the stereotyped language scale. On the general communication composite score, both the groups with ASD and ADHD performed similarly to each other, but demonstrated deficiencies compared to the TD group.

For Study 2, group differences for the CCC-2 were analyzed using MANOVAs. Multiple regression analyses were used to evaluate the predictive nature of ADHD characteristics on communication abilities for the pre-schoolers. The groups differed from each other on each of the ten scales of the CCC-2. On the scales: use of context, inappropriate initiation, non-verbal communication, social relationships, and interests, the group with ASD demonstrated greater difficulty than either the group with SLI or the TD group who performed similarly. For the structural language scales, both the groups with ASD and SLI demonstrated greater difficulty than the TD group. On the stereotyped language scale, the group with ASD demonstrated greater difficulty than the TD group. Comparisons of the group with SLI to both the group with ASD and the TD group did not reach significance.

On the first composite measures, the group with ASD demonstrated greater difficulty than the group with SLI, and both demonstrated greater difficulty than the TD group. On the second composite score, the groups with ASD and SLI did not differ significantly from each other, but did earn negative scores. A negative composite score indicates greater difficulties overall with structural language than pragmatic language. The TD earned a positive score reflecting a reverse finding. When just looking at the general pragmatics score however, the

group with ASD demonstrated significantly more difficulties than the other two groups, which did not differ significantly from each other.

The impulsivity scale on the PBQ was found to significantly predict the score of nearly every CCC-2 scale. These included: inappropriate initiation, use of context, nonverbal communication, social relations, and interests. The scores on the hyperactivity scale and the inattention scale of the PBQ did affect the score of the stereotyped language scale on the CCC-2. Age was a significant factor for speech output, syntax and coherence scales as well as the the general communication composite score and the communication composite score. When adding the PBQ impulsivity score, the prediction of the score for these scales increased. This indicates that higher impulsivity scores do predict further language difficulties.

### Conclusions

In the first study, parent report of children with ASD and ADHD indicated difficulties with pragmatic language but not structural language. The groups were in fact rated similarly in most areas. This was not true however in the use of context, non-verbal communication, and social relationships. In these areas, the children with ASD were rated as having greater difficulties than the children with ADHD. In the second study, the children with ASD were shown to have greater difficulty than the children with SLI, and the children with SLI had greater difficulty than the typically developing children. The children with ASD were shown to have greater difficulty on all scales, including language form.

### Relevance to current work

This work describes the structural and pragmatic language difficulties experienced by children with ASD as well as SLI. For this reason, these populations and their respective language profiles were considered when developing a program for intervention addressing social competence in the current work.

Hart, C., McGee, L., & Hernandez, S. (1993). Themes in the peer relations literature: Correspondence to playground interactions portrayed in children's literature. In C. Hart (Ed.), *Children on playgrounds: Research perspectives and applications* (pp. 371-416). Albany: State University of New York Press.

### Purpose of work

This book examines the behavior of school-age children within the social context of the playground. In their chapter, Hart, McGee and Hernandez examine themes of research involving peer relations in pre-school and grade school-age children to determine whether or not they are reflected in children's literature. They also propose ways in which children's literature can be used in intervention targeting aspects of social competence.

### Summary

Certain social skills facilitate friendship formation, whereas others are important for peer acceptance. These skill sets do not necessarily overlap with one another. Skills that seem to promote peer acceptance include child behaviors (prosocial behavior, aggression and disruptive behavior), social cognition (strategies, goals, social problem solving, intention cue detection, decision making, and attributions), affect and nonverbal characteristics (physical attractiveness, handicaps, birth order, social class, name, etc.). Friendship themes include: friendship formation processes and skills (exchanging information, managing conflict, establishing common ground, communication clarity, self-disclosure), friendship selection (proximity, similarity, age), and functions of friends (transmitting social norms and knowledge, nurturance, intimacy, protection).

In deference to the subject matter for the book as a whole, the review of children's literature was limited to friendships and peer relations as they occur in the playground setting. This setting represents more spontaneous opportunities for children to select and interact with potential playmates.

In the children's literature supporting peer acceptance, several books were found to illustrate play group entry, balancing goals and consequences, and social problem solving. Some specifically addressed special problems such as being learning-disabled, physically unattractive or culturally diverse. Throughout these stories, a few common types of characters are used: children who feel lonely or unworthy, children who are friendly and well-liked, and children who were bullies. The main character is often the one who illustrated withdrawn social behavior and ineffective play and group entry styles. The supporting characters often exhibited prosocial behaviors associated with more popular children. These supporting characters helped the main characters deal with their inadequacies and were nurturing, supportive and cooperative. The bullies often misinterpreted social cues and were examples of aggressive behaviors and ineffective use of attention cues.

Many more books were found to explore friendship than peer acceptance. Some common themes included emotional experiences of gaining or losing friendships. These stories illustrated friendship selection (close proximity, common interests, enjoyment of sharing activities, satisfaction of disclosing personal information, and/ or the joy of belonging). Other themes included, inappropriate was to form new friendships, or how friendships were maintained and strengthened.

In the first step of an intervention program for children with poor social skills, the direct instructional phase, using children's literature is an effective method for helping children to recognize a performance standard to which they can personally identify. This is achieved through the characters that are presented in a narrative format. This is particularly the case when the context of the story occurs in an environment that also occurs naturalistically in their social lives, such as the playground. These narratives offer instruction and insight into peer relations in "humorous, touching and memorable ways" (p. 403). This instruction broadens the child's understanding of interactions with others, and serves as an appropriate springboard from which to follow-up with subsequent rehearsal and feedback training variables.

## Conclusions

Carefully selected children's literature provides a rich resource for introducing and reinforcing key elements of social skills that are necessary in order to gain peer acceptance and form friendships. Stories containing social contexts found on playgrounds and other naturally occurring social contexts may serve most effectively in assisting the child to generalize the information to personal contexts.

#### Relevance to current work

In the current study, the intervention is centered on the presentation and rehearsal of carefully selected children's stories. Similar to the work discussed above, these stories contain important themes in peer acceptance and friendship. For the purpose of the current intervention, these stories were used to introduce and support key concepts related to emotion understanding and social competence.

Hart, K., Fujiki, M., Brinton, B., & Hart, C. (2004). The relationship between social behavior and severity of language impairment. *Journal of Speech, Language, and Hearing Research, 47*(3), 647. doi:10.1044/1092-4388(2004/050)

#### Purpose of the Study

The purpose of this study was to use the *Teacher Behavior Rating Scale* (TBRS) to verify the presence of withdrawn behavior and poor sociability in children with specific language impairment (SLI), and to determine whether or not a correlation exists between the level of performance on a formal language test and an individual's social profile.

#### Method

*Participants.* Eighty-two children participated in this study. Of the forty-one children with SLI, there were two age groups. In the group between six and nine years of age, there were fourteen boys and ten girls. In the group between ten and thirteen years of age, there were nine boys and eight girls. The forty-one typically developing children were gender and chronologically-age matched to the SLI children.

*Assessment Instruments.* The TBRS was completed by teachers of the participants in order to assess social behavior. For the purposes of this study, only items focusing on sociability and withdrawal were examined. The CELF-R (Semel et al; 1987) was used to assess the language abilities of the 41 participants with SLI. One child, receiving standard scores within the typical range on the CELF-R, was included in the study based on scores on the TOLD-2:P.

*Procedure.* Group comparisons were made using the TBRS subtype scores for withdrawal and sociability. Analyses were then conducted to determine the relationship between the severity of language problems and level of observed social functioning. Median splits, based on the performance of the entire group with SLI on the receptive, expressive and total language scores of the CELF-R were used to separate the participants into a moderate group and a severe group.



### Analysis and results

The only significant main effect found was for group. The group with SLI demonstrated significantly more reticence and solitary-passive behavior than the typical children. Similar measures indicated that the group with SLI scored lower than the typical children in behaviors relating to likeability and prosocial behavior. Gender wise, analyses identified a significant main effect for prosocial behavior but not likeability.

Additional inferential analyses revealed that children with SLI who presented more severe language deficits were also less sociable than children with more moderate language problems. Severity of language impairment did not correlate with severity of reticence, however.

### Conclusions

According to teacher observation, the children with SLI exhibited higher levels of withdrawal than their typically developing peers. This confirmed previous findings by Fujiki et al. (1999). The SLI children also demonstrated more solitary-passive withdrawal. This was not supported in previous findings (Fujiki et al. 1999). The presence of a correlation between reticence and solitary-passive behavior, however, does support prior research indicating that during the school-age years these two types of behaviors merge into a single maladaptive type of behavior reflecting social fear and anxiety. Solitary-active behavior rarely occurred in either group.

The level of language functioning was most directly correlated with prosocial behavior. The children with either severe receptive or severe expressive language scores were observed to be less prosocial than the children with moderate language scores. In terms of likeability, the children with severe receptive scores did show poorer likeability than the children with moderate scores, but no differences were found for expressive language scores. Similar links between withdrawal and language severity were not observed.

### Relevance to current work

Like the current work, the TBRS was used to assess withdrawn and sociable behaviors in children with LI. These results do indicate that children with LI have difficulties with social competence. They also indicate that these difficulties may in part be related to levels of language functioning, but other factors such as emotional competence may also play a role in social functioning.

Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child*, 2, 217-250.

### Purpose of the work

Eleven case studies of children with behaviors were described by Kanner as “extreme autistic aloneness,” (p. 127) which he differentiates from social withdrawal. These case studies

were presented in an effort to outline their common characteristics and to propose a unique “syndrome” (p. 126) not previously considered.

### Summary

The history and behaviors of eleven children (eight boys and three girls) were described in an effort to present common characteristics between them. These characteristics later became defining features (among others) used in describing individuals with Autism and Autism Spectrum Disorder (ASD). The most outstanding characteristic observed by Kanner was the individual’s “inability to relate themselves in the normal way to people and situations from the beginning of life” (p. 126). This is contrasted with other conditions in which the individual initially develops social awareness but later withdraws. Of the eleven children described, eight had acquired the ability to speak, but since none of these children used that language to convey meaning to others, Kanner viewed all eleven as having similar communicative functions.

### Conclusions

Kanner concluded that these children were born with an inability to form affective contact with people. These children manifest consistent behavioral characteristics and similar developmental patterns for social contact. He named this group of behaviors “inborn autistic disturbances of affective contact” (p. 136).

### Relevance to current work

Kanner provided the first diagnosis and description for characteristics of autism and ASD. Since that time, a considerable amount of research has been published concerning the diagnosis, development, and treatment of individuals with autism. While less severe than the problem observed in children with ASD, recent studies have also indicated that children with LI may also have deficits in social functioning related to affect discernment and regulation.

Klecan-Aker, J. (1993). A treatment programme for improving story-telling ability: a case study. *Child Language Teaching and Therapy*, 9, 105-115. doi:10.1177/026565909300900202

### Purpose of the Study

Oral narration is a key part of communication for children at home and in the academic setting. The purpose of this study was to measure the effects of an intervention addressing oral story-telling ability in a child with language impairment (LI).

### Method

*Participants.* A second grade boy, age 8;8 years, with below-average expressive and receptive language abilities, participated in this study.

*Assessment Instruments.* The following assessment instruments were used: the *Clinical Evaluation of Language Functions-Revised* (CELF\_R; Semel, Wiig and Secord, 1987), the

*Peabody Picture Vocabulary Test-Revised* (PPVT-R, Dunn and Dunn, 1981), the *Expressive One Word Picture Vocabulary Test* (EOWPVT; Gardner, 1979), and the *Woodcock Reading Mastery-Revised* (Woodcock, 1987). Criterion-referenced assessments in oral and written stories were used to determine specific treatment targets. Two stories were elicited, one week apart. These stories were subjected to a t-unit analysis.

*Treatment.* Treatment occurred in two one-hour sessions per week for twelve weeks. During treatment, underlying concepts of all the story-grammar components were presented. These included initiating events, attempts or actions, and consequence statements. Since this portion of treatment was considered the “teaching” portion, very little response was expected from the participant. The next stage of treatment involved a presentation of multiple-choice activities designed around his level of narrative. Once successful with these activities, the procedure shifted to fill-in the blank activities, followed by instruction at the next level of stories which included an internal response component. The same procedure was used at this level and the following story level. At the conclusion, two spontaneous stories were elicited one week apart, and analyzed.

#### Analysis and results

There was an overall increase in the number of t-units, number of clauses per t-unit and in the level of complexity in the post treatment spontaneous stories. The participant’s level of spontaneous stories also moved from a Level 2 to Levels 4 and 5. This increase in complexity also increased the number of story-grammar components used within the narrative. Post-treatment standardized testing revealed improved reading comprehension from an age-equivalent score of 7.3 to 7.7, but little change in receptive or expressive language scores.

#### Conclusions

These results indicated that story telling can be taught successfully to a child with LI. Anecdotal teacher comments suggested that gains in this skill impacted academic success. While not directly targeted or measured, it was observed that the level of complexity for written stories as well as oral stories improved. During post-testing the participant used a level 5 for the first story and a level 4 for the second story.

#### Relevance to current work

These results indicate that children with LI may respond successfully to interventions targeting story telling. This may have a significant impact on the individual’s access to academic learning. This study is just one of a few published studies of effective social skills intervention for school-age children with LI. There is a need for further studies investigating the effectiveness of treatment for this population.

Liiva, C., & Cleave, P. (2005). Roles of initiation and responsiveness in access and participation for children with specific language impairment. *Journal of Speech, Language, and Hearing Research*, 48(4), 868-883. doi:10.1044/1092-4388(2005/060)

## Purpose of the Study

Liiva and Cleave compared the ability of children with specific language impairment (SLI) and typical developing children to access and participate in ongoing interactions between two unfamiliar peer partners.

## Method

*Participants.* Twenty-three triads of children in first and second grade participated in this study. Each triad consisted of one target child and two gender and grade-level-matched unfamiliar play partners. The target participants included ten children (3 girls and 7 boys) with SLI and thirteen (6 girls and 7 boys) typically developing children (TD).

*Assessment Instruments.* The following assessments were used to qualify SLI participants for inclusion: the *Clinical Evaluation of Language Fundamentals-Third Edition* (CELF-III; Semel, Wiig, & Secord, 1995) and the *Test of Nonverbal Intelligence- Second Edition* (TONI-II; Brown, Sherbenou, and Johnsen, 1990)

*Procedure.* In phase one, the play partners were brought into a room with toys placed on a carpet. The children were invited to sit and play with the toys. The examiner then retreated to another place in the room and appeared to be working. After ten mins the examiner left the room to collect the target child. The target child was told that they will be talking with two other children and playing with toys for 10-20 min. The child was brought into the room and introduced to the partners. The target child was told he or she could play with the toys, but was not given a specific role or instructed to stay on the carpet. The examiner then retreated to the previous position in the room and resumed working. When approached with questions or for assistance, the examiner provided minimal responses.

## Analysis and results

Access episodes were identified and coded as successful or unsuccessful. The time period between introduction and successful access was also noted. The successful access attempts were divided into two categories, access response and access initiation. A child receiving a successful access response continued to be monitored until either the child achieved a success access initiation or the 10 min period ended. Verbal and nonverbal partner inclusion bids were also counted. Following successful access, the target children's behaviors were coded at five s intervals for group play, individual play and onlooking behavior.

All of the target children achieved successful access, but differed widely in the manner in which access occurred. Only one of the TD children initially accessed responsively (the play partners made an initiation to the child), but then quickly went on to achieve a successful access initiation. The remaining TD children first accessed their interaction by making initiations toward the partners. Six of the children with SLI, on the other hand, first accessed responsively. Of these, only two went on to achieve successful access initiation.

A two-way ANOVA with repeated measures indicated that there were no significant differences between the numbers of utterances produced by each member of the TD triads. The participants produced significantly more utterances following access than they did before. A similar analysis for the triads with participants with SLI revealed that the target children produced significantly fewer utterances than either partner groups, but there was no difference between the partner groups. As with the TD children, significantly more utterances were produced following access than before. One tailed Pearson correlation coefficients revealed that among the children with SLI, those who produced higher proportions of talk within the triad had earned better absolute expression language scores on the CELF-III.

### Conclusions

These results indicate that while TD children tended to quickly produce verbal bids for access, the children with SLI tended to wait for an invitation from the partners to play. Even after initially achieving positive feedback from the partners, the children with SLI demonstrated difficulty in formulating successful verbal and nonverbal initiations. These confirm previous findings by Craig and Washington (1993) and Brinton, Fujiki, Spencer, and Robinson (1997) that children with SLI are slower to gain access and tend to manifest more reticent behaviors than the TD children. Rather than severity of total language impairment, expressive language skills were found to be the most important predictive factor in how long children took to achieve successful access.

### Relevance to current work

In this study, the task was structured to support successful peer entry for the participants. Even so, the children with SLI demonstrated greater difficulty and variability than the TD children. This suggested that when the situation increased in complexity for these children, as it would in naturally occurring contexts, their risk for failure would also increase. For this reason, these children are in need of intervention designed to specifically address the skills needed by these children in order to successfully gain peer access and to participate in a variety of formal and informal social contexts.

McConnell, S. R. (2002). Interventions to Facilitate Social Interaction for Young Children with Autism: Review of Available Research and Recommendations for Educational Intervention and Future Research. *Journal of Autism & Developmental Disorders*, 32(5), 351. doi:10.1023/A:1020537805154

### Purpose of the Study

In response to a request by the Committee on Educational Interventions for Children with Autism of the National Research Council, McConnell reviewed the empirical evidence published regarding the characteristics of social interactions and social relationships among young children with autism, including successful strategies for promoting competence or improved performance.

### Method

*Material considered for review.* Published academic or scholarly papers with an emphasis on publications from peer-reviewed journals were considered. In addition, a few chapters contained in “widely circulated, and generally well-regarded academic books” were also considered.

*Procedure.* A systematic search of published research available through May 2000 was conducted, followed by an abbreviated search conducted in October 2001. The search was conducted on the *PsychInfo* online database. The entries “autistic” or “autism” were used with one or more of the following: “social relation(s)”, “social relationships”, “social skill(s)”, “social development”, “social interaction(s)”, “friend(s)”, or “friendship(s)”. This process generated 793 references which were screened for direct relevance to interventions for social interactions, social relationships or friendships for children under the age of 9 with autism. From this search, 320 entries were retained. Major reviews from 1988 and forward were selectively reviewed for the purpose of developing an overview of theoretical, conceptual and methodological issues relating to social interactions and relationships among young children with autism. The entries which directly related to intervention were next reviewed. For both of these types of review, “ancestor” and “descendent” reviews were also conducted. The final phase of review involved an examination of the intervention methods used.

### Analysis and results

Children with autism were found to generally score lower than typically developing peers and, on occasion, children with other disabilities, on formal teacher-report measures or standardized tests of social competence. These children spent less time interacting and had lower-quality interactions than their typical peers. They also spent more time engaged in purposeless or no activity and frequently positioned themselves at greater physical distances from their peers. Their social interactions were found to be different from their peers in terms of fewer verbalizations to others, less time in proximity of peers, less focused on adults as interactive partners and more frequently engaged in atypical behavior. McConnell observes, however, that while the interactions differ, many of these children do participate in some interactions with their peers, in spite of the fact that it appears social interactions are not preferred activities for young children with autism.

According to the evidence, children with autism engage in higher rates of repetitive non-functional movement, higher rates of self-injurious or challenging behavior, and lower rates of proximity to peers. This is inversely proportional to rates of social interaction. This may be either the result of greater reinforcement from the behaviors than the social interaction, or it may be that these behaviors effectively terminate or reduce the social interaction.

For intervention effects, the references were screened for articles that focused on teaching, training, or providing intervention on social functioning in children 8 years of age or less. Case studies, program descriptions, and most studies published before 1979 were excluded. This resulted in 55 investigations which were placed into five categories: ecological variations, collateral skills interventions, child-specific interventions, peer behavior, and comprehensive interventions.

Eleven articles regarding ecological variations revealed that children with autism were more likely to engage in social interaction when the activities were ones they prefer, or when the activities and materials were predictable. This was also the case when there was low environmental stimulation. Increased structure in the activity generally resulted in increased interactions without increased teacher-mediated intervention. Integrating children into groups of higher functioning peers increased the number of initiations received, but did not increase the number of initiations responded to. Training directed at peers regarding how to interact with classmates with autism was successful, but only after three or more peers in a group of five received this training. Higher rates of participation occurred when children with autism were paired with same-age peers as opposed to younger developmentally matched peers.

Nine studies regarding collateral skills interventions were examined. These were interventions for which an increase in social interaction occurred as a result of training in unrelated skills. These studies revealed a functional relationship between social interaction and social participation. These collateral skill interventions increased social interaction by bringing the children with autism into contact with their typically developing peers.

Fifteen studies reflected child-specific intervention procedures. These interventions had the potential to increase social interaction for children with autism. This occurred as either a direct effect of the intervention, or as a part of the generalization or maintenance process.

Thirty studies were examined which reported peer-mediated procedures. These procedures indicated the strongest results for treatment effects. One limitation to this procedure however, was that it required continuous access to “trained” peers.

Comprehensive interventions were reported in seven studies. These described interventions containing components of two or more of the intervention groups. Intervention targeting both children with autism and typically developing children produced significant increases in social interaction in intervention settings. This method however, was likely to require logistically more demanding procedures but not to necessarily be more powerful.

## Conclusions

In the past twenty years, research on social interaction intervention for young children with autism has seen important and beneficial advancements. It has been well established that children with autism can reliably benefit from social interaction skill interventions. There are a wide variety of intervention strategies and methods. More comparative investigations would strengthen the understanding of the relative effects of the different intervention conditions. Intervention has been proven effective for targets of social initiations and responses, collateral behaviors such as language and play, problem solving skills (greeting others, conversing on a variety of topics, keeping interactions going, turn taking, asking for help, and helping others), self-monitoring and self self-management. There are three limitations to the current procedures described in the literature. The first is that few of the evaluations contain “intact, well-described and disseminable interventions or curricula” (p. 367). The second limitation is that at least some of the currently popular intervention procedures have little or no peer-reviewed empirical support for the interventions, or even the main components of these interventions. The third limitation is

that intervention targets, settings, and procedures tend to involve classroom settings homes and other community settings.

#### Relevance to current work

This review provides useful information regarding the social skills of children with autism. It also presents a comprehensive summary of effective methods for intervention for children with autism. Many of the components described here were employed in the development of the treatment program used in the current study.

Merrison, S., & Merrison, A. (2005). Repair in speech and language therapy interaction: Investigating pragmatic language impairment of children. *Child Language Teaching & Therapy*, 21(2), 191-211. doi:10.1191/0265659005ct288oa

#### Purpose of the Study

This study examined the conversational repair skills of three groups of children. These groups were: children with pragmatic language impairment (PLI), specific language impairment (SLI), and typically developing children.

#### Method

*Participants.* Nine children, ages 7 to 11, participated in this study. Three of the children had SLI, three children had PLI, and three children were typically developing.

*Assessment Instruments.* A map task activity was used pre and post treatment. This involved the therapist describing a route on her map (using a preset script of 16 directions) to a child. The child was asked to draw the route on his or her map by replicating the therapist's route as closely as possible. The task was designed to provide opportunities for the child to initiate repair due to communication breakdown. These breakdowns occurred due to the following conditions: (a) differing landmarks between the two maps, and (b) inadequate instructions given by the therapist. The child was advised that the maps might contain differences and that they should ask questions if they were not sure about any directions given.

*Treatment.* All nine children participated in a one-on-one map task activity with the examiner. The three children in the group with PLI then received six weekly sessions of therapy. The therapy targeted pragmatic language skills including: asking when you don't understand, telling important information to others, and checking to make sure you understand. The three children with SLI received therapy concentrating on language form, (phonology, syntax and morphology). The three typically developing children did not receive therapy. A second map task was administered to all nine children following the treatment phase. The repair skills were compared on the pre and post map tasks.

#### Analysis and results



Transcripts of the map tasks were analyzed for responses to each of the inadequate directions. There were three directions involving absent landmarks. Both the typically developing children and the children with SLI initiated repair more often than not. In contrast, the children with PLI tended to not initiate repair. The typically developing children produced closer replicas of the target route than the group with SLI. The group with SLI also initiated repair more often than the typically developing group. The group with PLI demonstrated a tendency to not initiate repair and produced poor reproductions of the target route.

On the follow-up map task, the typically developing group showed a significant increase in their initiation of repair (from 67% to 100%). This group was the only group not familiar with the therapist at the time of the first map task. Familiarity with the therapist and the task on the follow-up map task may have accounted for some of this improvement. The group with SLI showed relatively little change between the two tasks (78% to 67%). This indicates that there was likely no learning effect. It also supports the idea that the change in the typically developing children was in fact due to increased familiarity with the therapist and task. The group with PLI, however, showed a dramatic change (11% to 78%). These initiations also tended to be explicit rather than implicit.

### Conclusions

The map task proved to be an effective measure of conversational repair skills. It also demonstrated that these repairs were primarily a function of pragmatic language rather than structural language proficiency. The group with PLI showed a significant positive learning effect for treatment targeting these skills.

### Relevance to current work

This study supports the idea that the development of social competence relies on more than improved formal language skills. There are social components of communication which some children with LI do not acquire without more direct intervention. This information adds to the small body of work devoted to the effectiveness of social skills interventions for school-age children with language impairment. Conversation repair skills are just one of many aspects of social communication competence. Further research is needed to better understand and develop effective treatments for social communication in school-age children with LI.

Odom, S., McConnell, S., & Brown, W. (2008). Social competence for young children: Conceptualization, assessment, and influences. In W. Brown, S. Odom, & S. McConnell (Eds.), *Social competence of young children: Risk, disability, and intervention*, (2nd ed., pp. 3-30). Baltimore: Brookes Publishing Co.

### Purpose of work

This chapter examines peer-related social competence in young children. It describes the many factors that contribute to or hinder the expression and development of social competence.

### Summary

In young children, social competence is the application of contextually appropriate social behaviors to achieve personal social goals. This competence may be viewed on a continuum, with those who select appropriate and effective behavioral strategies experiencing peer group acceptance and reciprocal friendships. Those who lack this competence tend to produce either more aggressive and disruptive behaviors, or to be socially withdrawn and isolated. These individuals are at a greater risk for peer rejection. For this reason, the development of social competence has far reaching consequences impacting elementary school, high school and beyond.

In assessing social competence, a multi-methods approach is recommended. This would include reliable measurement of social performance from different sources and perspectives: direct observation, teacher and parent rating and social problem solving. In addition, sociometric ratings by peers and friendship measures may also be used. Each of these methods offers unique information which contributes to the larger picture of a child's social functioning.

In discussing the factors that influence the development of social competence in young children, Odom et al. present two types of influences. The inside-out influences involves those factors contained within the child. These include: neurology and brain development, temperament, self-regulation and emotional competence, gender differences cognitive skills, and disability. The outside-in influences are those that exist outside of the child. These include: family, classrooms and teachers, early intervention, peer groups, friendships, and culture. These factors may contribute to differential effects of treatment, but treatment and assessment that is carefully selected to appropriately match a child's inside and outside influences may be beneficial in helping a child to move up the continuum of social competency.

## Conclusions

There are many factors to consider when assessing and developing effective treatment targeting social competence in young children. A multi-methods approach to assessment should be considered in order to better understand the complex nature of contributing factors in an individual child's development of social competence.

## Relevance to current work

There are many factors that contribute to social competence. Poor development of social competence has a significant impact on peer acceptance and friendships in childhood which can last into adulthood. More research is needed to better understand how to assess and develop effective treatment for these children. Many children with LI experience difficulties with formal language use, but also demonstrate deficits in social competence as well.

Radke-Yarrow, M., Zahn-Waxler, C., & Chapman, M. (1983). Children's prosocial dispositions and behavior. In E. Hetherington (Ed.), *Handbook of child psychology: Vol. 4 Socialization, personality, and social development* (pp. 469-546). New York: Wiley.

## Purpose of Work

In this chapter, Radke-Yarrow et al, discuss behaviors in children that express care or concern for others. More specifically, they review information regarding the nature of positively oriented dispositions and their influence on behaviors in children.

### Summary

According to the authors, prosocial behavior can be described as that behavior which is carried out for the benefit of others. In children, this behavior is manifest through their natural disposition to express care and concern for others. Children demonstrate a spontaneous interest in others and a capacity for positive behavior toward others. These behaviors at times may also be in conflict with behaviors directed at self-interest.

A brief exploration of history and culture pertaining to prosocial behavior, as well as its significance in psychological and biological theories of behavior was presented. Based on this exploration, the authors proposed that social behavior is best understood within the context of emotional development. With this perspective in mind, a systematic review of research pertaining to prosocial behavior in children within the domain of developmental psychology was presented. The results of this review revealed a change in perspectives regarding altruism and empathy in children. The data specifically indicated that behaviors of sharing, cooperating, helping, feeling empathy, and caring for others must be considered in addition to other previously recognized forms of social interaction.

### Conclusions

It can be assumed that “maturing capacities and socialization experiences” (p. 527) do impact a child’s prosocial behavior. This seems to occur independently of the child’s “innate readiness” (p. 527). The process for research in understanding the nature of this relationship has changed considerably over the years, and much more is needed to better understand the influence of individual factors in the expression of prosocial behaviors in children.

### Relevance to current work

In the current work, the *Teacher Behavior Rating Scale* (TBRS) is used to assess withdrawn and sociable behaviors in children. The sociability subscale was developed, in part, based on the definition and description of prosocial behavior discussed in this chapter.

Richardson, K., & Klecan-Aker, J. (2000). Teaching pragmatics to language-learning disabled children: a treatment outcome study. *Child Language Teaching and Therapy*, 16, 23-42. doi:10.1177/026565900001600103

### Purpose of the Study

In this study, Richardson and Klecan-Aker measured the effects of a treatment program designed to improve pragmatic language skills in areas of conversation, internal responses, and qualitative and quantitative descriptions of objects in children with disabilities.

## Method

*Participants.* Twenty school age children participated in the study. The participants were divided into two groups. Class one included six boys and three girls enrolled in first and second grade. Class two included five boys and six girls enrolled in kindergarten.

*Assessment Instruments.* A criterion referenced test eliciting pragmatic skills was used for the baseline measures. Language use and social skills comprised the two main sections of the test. The social skills section included a spontaneous conversation sample, questions regarding initiating, maintaining and ending a conversation, asking for help, and receptive and expressive identification of emotions. The language use section included labeling and description of objects.

*Treatment.* This study was a time-series ABA within-subjects design, where A1 was the baseline, and B was treatment, and A2 was a second baseline used to observe performance without treatment. The treatment was initiated three-weeks after the initial baseline criterion-referenced test was administered. The treatment phase lasted for six weeks, followed by the follow-up baseline phase. The treatment involved instruction and review of: conversation, receptive and expressive identification of emotions, and descriptions of objects. Each session consisted of a review of previous concepts followed by instruction of new material. All three targets were taught concurrently within each session.

## Analysis and results

Descriptive statistics were used to analyze the data. The results indicated that both classes demonstrated improvement in all three target areas following treatment. In starting a conversation, class one improved from 55.6 % to 100%. Class two improved from 45.5% to 100%. In maintaining a conversation, class one improved from 77.8% to 100%, class two improved from 59% to 95.5%. For ending a conversation, class one remained at 100% and class two improved from 90.9% to 100%. While class two demonstrated greater improvement, this was due to a lower level of performance at the pre-baseline than class one. Class one improved in receptive identification of emotion from 59% to 92.6%. Class two improved from 56.1% to 71.2%. Expressive identification of emotion improved from 62.9% to 81.3% in class one and from 56.2% to 77.2% in class two. Class one showed greater improvement in receptive identification, and class two showed greater improvement in expressive identification.

On qualitative and quantitative descriptions of objects, both classes demonstrated improvement. In class one, two children failed to produce any qualitative descriptors on one of the objects. The remaining children only used an average of 1 or 2 qualitative descriptors for both. At final testing, every child used qualitative descriptors and only three of the nine used two or fewer. In class two, six of the children used qualitative descriptors in describing one of the objects. During final testing, these children used four qualitative descriptors. Quantitatively, the children in class one used 6.6 descriptors overall to describe the first object at initial testing, and they used 5.4 descriptors to describe the second object. During final testing, they used 11.1 descriptors on the first object and 5.7 on the final object. Class two used 5.6 on the first object

and improving to 11.2 at final testing. On the second object they initially used 3.8 and improved to 5.5 descriptors on the final test.

### Conclusions

These results indicated that over a six-week course of intervention, school-age children with learning disabilities were responsive to intervention targeting conversation, receptive and expressive identification of emotions, and qualitative and quantitative description of objects. A comparison between the two age groups also indicated that older children used language functions with greater accuracy. It was also discovered that there was improvement in areas of language not directly treated. This may have indicated that intervention in one area could have positive effects in other areas as well.

### Relevance to current work

The results of this study indicated that school-age children with LI are responsive to intervention targeting pragmatic language. These results also indicated that while other language targets may not be directly targeted, the intervention may support their development as well. There are still relatively few studies exploring the effectiveness of treatment targeting social communication skills in this population..

Rogers, S. J. (2000). Interventions That Facilitate Socialization in Children with Autism. *Journal of Autism & Developmental Disorders*, 30(5), 399.

### Purpose of the Study

This article is a review of empirical research regarding social interventions developed for children with Autism.

### Method

*Material considered for review.* While not exhaustive, the review does examine several social interventions described which have empirical support. Most of the studies reviewed used single-subject designs.

*Procedure.* The summary was organized by age and type of intervention. It covered individuals from preschool to adolescence and included interventions targeting improved interactions with parents, other adults and peers.

### Analysis and results

In preschoolers, two interventions were reviewed which enhanced parent-child relationships. Considerably more research has been published regarding peer interactions in preschoolers. The main methods described by Rogers include peer-mediated intervention, peer tutoring, and adult instruction in games and scripts. The most extensively developed and successful method was the use of “play organizers” described by Strain, Odom, Goldstein and

others. In school-age children there were several successful approaches for increasing interactions with adults. These included self-management strategies, teaching sociodramatic role-play using pivotal teaching responses, video-modeling techniques, and direct adult instruction. For interventions intended to increase peer interactions in school-age children, several methods were described. These included: adult instruction, social stories, peer-mediated approaches, peers as tutors, social skills groups, pivotal response training, peer tutoring and visual cuing.

Using peers to increase social engagement of children with autism has been successful, but requires careful design and use. Trained peers created desired social effects more efficiently and rapidly than untrained peers. The use of trained same-age, typical peers in dyadic interactions was the most effective. Daily exposure was another critical factor in the increase of social behaviors and in generalization and maintenance. Targeted social behaviors included: improved proximity, appropriate play, time looking at peer, and time engaged socially. The use of rule-governed games facilitated the most complex interactions and kept the children most involved. Construction materials were also found to be more effective than dramatic play and functional play. In discussing interventions that increased adolescent peer interactions, the following techniques were described: object-initiated interactions, self-management strategies, circle of friends, and social skills groups.

## Conclusions

Rogers concludes that while social competence is a primary deficit in children with autism, these children are highly responsive to a wide variety of intervention programs. Some of the interventions reviewed were able to also demonstrate that remediation in this area carried over to targets not specifically addressed in treatment. Additionally, some negative behaviors were found to decrease during active social engagement. The role of peers in intervention was also discussed. The most successful strategies involved either peer mediation or peer tutoring. The use of adult partners failed to succeed in generalization to peer interactions without specific peer training.

## Relevance to current work

Children with autism demonstrate deficits in social competence. This review confirms that children with autism are responsive to intervention which targets social communication skills. This review also suggests that while many programs are promoted for use in children with autism, not all of these intervention programs have empirical evidence to support their effectiveness. Research is an important part of that development. Further evidence is needed to either support these practices, or to identify more effective ones. All of the studies reported here and elsewhere contribute to a general body of knowledge pertaining to children with autism and other language impairments. This information is vital to the understanding and development of effective treatment practices. The current work involves a treatment program designed to increase social competence in children with LI, including children with autism. Many of the principles of this design are based on elements of the research conducted by those reviewed here and elsewhere.

Rubin, K. H. (1982). Nonsocial Play in Preschoolers: Necessarily Evil? *Child Development*, 53(3), 651. doi:10.1111/1467-8624.ep8588517

### Purpose of the Study

In this study, Rubin examined the social, cognitive and social-cognitive correlates of nonsocial play. This was done in order to better understand whether or not some forms of nonsocial play are constructive and adaptive rather than indications of cognitive or social-cognitive difficulties.

### Method

*Participants.* One hundred twenty-two children (53 male and 69 female) participated in this study. All of the children were four years of age ( $M = 58.11$  months,  $SD = 4.37$  months) and attended preschool or day care.

*Assessment Instruments.* Sociometric popularity was determined by presenting each participant with photographs for each classmate. The participants assigned each photograph to one of three boxes: children they liked a lot, children they kind of liked, and children they didn't like. Each child received a total rating score which was then divided by the number of children in each class. Social competence was determined based on teacher responses to the *Preschool Behavior Questionnaire* (PBQ; Behar and Strangfield, 1974). Role taking was measured using the "hide the penny" game (DeVries; 1970), and scored using the recursive thought criteria. Social problem-solving skills were assessed using the *Preschool Interpersonal Problem-Solving Task* (PIPS; Spivack and Shure, 1974). For impersonal problem-solving, a lure retrieval problem (Smith and Dutton; 1979) was used. Receptive vocabulary was assessed using the *Peabody Picture Vocabulary Test* (PPVT).

*Procedure.* Each participant was observed in free play for a total of thirty min, consisting of six 10 s intervals over a 30-day period. The behaviors were coded from a checklist containing cognitive play categories (functional-sensorimotor, constructive, dramatic play, games with rules), and social participation categories (solitary, parallel, group activities). Unoccupied behavior, onlooker behavior, reading or being read to, rough-and-tumble play, exploration, active conversations with teachers or peers and transitional behaviors were also coded. The quality of any social interchange was coded as positive, neutral or negative. The names of focal conversational partners were noted as well as who initiated the interaction.

### Analysis and results

The least mature form of play produced by 4-year olds, solitary-functional play, was found to have a negative correlation with mental age. It was also negatively correlated with the number of social overtures received from other children, the proportion of positive interactions to the total number of social interactions, the number of peer conversations, the socio-metric rating and the index of construction complexity computed during the play phase of the impersonal problem-solving paradigm.

The occurrence of solitary-constructive play was negatively correlated with the number of social overtures received and the number of peer conversations held during free play. There were no significant correlations with peer sociometric ratings or the teacher ratings of social competence. This would indicate that solitary-constructive play is less likely to indicate negative social outcomes.

Solitary-dramatic play was negatively related to chronological age. This was significant because of the limited age range for the participants. It was positively correlated with teacher ratings of social maladjustment and the amount of time taken to complete the impersonal problem-solving task.

Parallel-functional activity which occurs in close proximity to others had a positive correlation to frequency of transitional behaviors, the proportion of negative interactions to the total number of social interactions, and the measure of play construction complexity. It was observed that sensorimotor activity, especially large-scale frenetic behavior, is most likely to result in conflict.

Parallel-constructive behavior was the most frequently occurring activity. It was most like the kinds of activities promoted by elementary teachers. For this reason it was negatively correlated with teacher ratings of maladjustment. It was also positively correlated with MA, sociometric ratings, the number of relevant alternatives produced on the social problem-solving task, and the measure of complexity. It was negatively correlated with rough-and-tumble play and the amount of time it took to solve the impersonal problem.

Unoccupied behavior was positively correlated with teacher ratings of maladjustment. It was negatively correlated with the number of peer conversations. Onlooking behavior was negatively correlated with: MA, chronological age, the number of peer conversations, rough and tumble play, complexity of play constructions, and teacher ratings of social maladjustment. For this reason, Rubin considered this type of behavior to be more benign.

## Conclusions

These results indicated that some nonsocial behaviors do have negative correlations with social, social-cognitive and cognitive levels of functioning. These would include solitary-functional, solitary dramatic and parallel-functional play. Not all nonsocial activity is associated with a negative developmental prognosis however. Solitary-constructive and onlooking behaviors appear to be more benign. Parallel-constructive play was highly predictive of competence on solving impersonal and social problems. It was also associated with peer popularity and teacher ratings of social competence.

## Relevance to current work

This understanding of nonsocial behavior in young children is foundational and contributed to further observation and descriptions of withdrawn and sociable behaviors in children. It also led to improved understanding of how these behaviors contribute to and offer



predictions of social competence. *The Teacher Behavior Rating Scale*, used in the current work, is based on principles developed from this foundational information.

Ryan, C., & Charragáin, C. (2010). Teaching Emotion Recognition Skills to Children with Autism. *Journal of Autism & Developmental Disorders*, 40(12), 1505-1511. doi:10.1007/s10803-010-1009-8

### Purpose of the Study

This study describes an intervention method targeting components of facial expressions for children with autism, using a part-whole process.

### Method

*Participants.* Thirty-three children, (3 girls and 30 boys) between the ages of 6;9 and 14;3, participated in this study.

*Assessment Instruments.* Scores from the *Emotion Recognition Task* (ERT) before and after treatment were used to indicate improvement.

*Treatment.* The participants were randomly assigned to either the experimental group or to a waiting-list control group. The participants in the experimental group were taught to recognize parts of the face involved in expressing emotion. For example, raising the eyebrows, widening the eyes and jaw dropping/ mouth opening for manifesting surprise. This was done for six emotions: happy, sad, angry, scared, surprised, and disgusted. As part of the treatment, children were asked to identify a particular emotion from a range of expressions by taking into account each component part of the expression. Roleplay, tracing, drawing, and matching games were used to reinforce the components of each emotion. The children were also asked to record an example of a facial expression of emotion in real life and note the context in which it occurred. Instruction occurred in one-hour blocks for a four-week period, and was administered to the participants in small groups ranging from four to seven children.

### Analysis and results

The experimental group demonstrated significant improvement in post-treatment scores verses pre-treatment scores. They also showed significant improvement over the waiting-list control-group. Additionally, the pre-treatment scores confirmed prior research indicating that children with autism have difficulty identifying basic emotions. Surprise and disgust were identified as the most difficult for this group of children.

### Conclusions

The authors note that while this study did indicate the potential for learning, anecdotal information supplied by parents of the children in the study offered insight into the need for not only teaching the children to recognize the emotion, but also how to respond appropriately. For

example, when a parent would express anger, the child would comment, "that is a cross face," (p. 1510) but laugh at the same time.

#### Relevance to current work

These data indicated the benefits of treatment in helping children to recognize emotion. They further supported the need to help children with autism to appropriately respond to those emotions in a communication interaction.

Sigman, M., Dijamco, A., Gratier, M., & Rozga, A. (2004). Early detection of core deficits in autism. *Mental Retardation & Developmental Disabilities Research Reviews*, 10(4), 221-233. doi:10.1002/mrdd.20046

#### Purpose of the Study

This was a review of published literature regarding approaches used in the early detection of autism in infancy.

#### Method

No specific selection process was described. The selected research was first reviewed in order to develop the criteria for a deficit to be considered "core" to autism. Research strategies used in early detection were examined next. An overview of what is known about early social development in typically developing children was next explored. This was then related to the core deficits experienced by young children with autism. These social domains included: dyadic interaction and imitation, emotion discrimination, and attachment.

#### Analysis and results

At different ages and skill levels, areas of function must be measured in different ways. For this reason, characteristics, for the purpose of diagnosis, of children with autism who are less than 2-3 years of age have not yet been established. Several research strategies have been used in an effort to identify the earliest manifestations of autism in infants and toddlers. One approach has been to collect video recordings of children who were later diagnosed with autism. These have been compared to video recordings of typically developing children. There are numerous methodological constraints to this process. One study, however, reported a comparison between two children with autism, two typically developing children and two children later diagnosed with intellectual disability (ID). This allowed for observations to be controlled for the effects of ID which frequently accompanies autism. Another approach was to screen large numbers of children for deficits that children with autism often show at later ages. Out of 16,235 infants screened, 12 were considered high-risk for autism. Of those twelve, only one was later seen as clinically typical. Nine were diagnosed with autism, one was diagnosed with PDD, and one was diagnosed with a severe language disorder. Of the 22 identified as medium risk, only 2 were found clinically typical. One was diagnosed with autism, nine were diagnosed with PDD, seven had language disorders, two had general developmental delay, and one had cerebral palsy. This demonstrated a positive predictive value, but low sensitivity. Forty additional cases

of autism were later identified as well as thirty-four additional children who were diagnosed with PDD.

While dyadic interaction and imitation have not been studied in children with autism between birth and 18 months, studies of older children with autism indicate specific deficits in imitation and in non-verbal social-emotional interactions. It was found that children with autism were more responsive to maternal interactions when the intensity of the approach behavior was high, used objects, and increased proximity in the interaction. Imitation has been found to be particularly impaired in children with autism, but has been shown to be differentially affected depending on the types of tasks used. For example, imitations of functional actions occurred more often than imitations of the emotional quality of actions.

While there have been numerous studies involving emotion discrimination of older children and adults with autism, there have been no studies involving children under five years of age. Typically developing children gradually develop the ability to differentiate between simple facial emotions between four to fifteen months of age, but significantly older individuals with autism have been observed to have continued difficulty with this skill.

It has been well-documented that children with autism have deficits in intersubjectivity. Children with autism do, however, form attachments to their primary care givers. It does appear that this development of attachment does not follow the same pattern as typically developing children. For most children with autism, attachment does not progress to the final stage which involves working models of relationships.

## Conclusions

While there is a great deal of published information describing typical development of children in areas for which children with autism manifest core deficits, and there is a great deal of information regarding deficits in children over the age of two with autism, there is very little information regarding the development and behaviors of children with autism from birth to 18 months of age. This information would be useful in diagnosing and understanding early development for these children. With understanding could come potential early identification and intervention.

## Relevance to current work

This review brings together information about what is known about typical development in children between birth and eighteen months of age with what is understood to be “core deficits” in older individuals with autism. This information was useful in the current work for understanding core deficits recognized in school-age children with autism, and how they compare to typically developing children.

Spackman, M., Fujiki, M., & Brinton, B. (2006). Understanding emotions in context: The effects of language impairment on children's ability to infer emotional reactions. *International Journal of Language & Communication Disorders*, 41(2), 173-188.  
doi:10.1080/13682820500224091

## Purpose of the Study

The purpose of this study was to examine the ability of children with language impairment (LI) to accurately infer emotions elicited by social situations.

## Method

*Participants.* Eighty-six children participated in this study. Of these, 43 (23 boys and 20 girls) were children with LI and forty-three were gender and chronologically age-matched typically developing children. Each group was divided into two age groups. The younger group consisted of 11 boys (mean age = 7;6, SD = 9 months) and 10 girls ( $M = 6;6$ ,  $SD = 12$  months) and the older group consisted of 12 boys ( $M = 10;9$ ) and 10 girls ( $M = 10;4$ ,  $SD = 10$  months).

*Procedure.* Spackman, Fujiki and Brinton presented school-age children with stories in which the main character, Chris, was shown to be involved in situations that would be expected to elicit certain emotions such as: happy, sad, angry or afraid. The children were asked to identify what emotion the character most likely experienced for each situation, and to explain why. The children were then asked to describe the emotion. For example, “how does it feel inside to be happy?”

## Analysis and results

The most accurately identified emotion was happy, followed by sadness, fear, and anger. The older and typically developing children were found to be more accurate in identifying emotions. The identification of fear and anger was significantly lower in the younger group of children than in the older group. The most common emotion confusion was the identification of sadness for fear and anger scenarios. In the younger group, anger was more commonly misidentified for fear than in the older group.

In looking at the responses to the open ended questions, the group with LI produced more lower-level responses than the typical group. These responses included: inappropriate, restate, and valence categories. The typical group responded more frequently in the higher-level responses (source, definition, and description) than the group with LI. The older age group also responded more frequently in the higher level than the younger age group.

## Conclusions

The typically developing children were significantly more accurate and more sophisticated in their descriptions than the children with LI. The same was true for the older children versus the younger children. Happiness and sadness were the easiest for all groups to accurately identify, while fear and anger were the most difficult. The younger group was particularly more likely confuse fear and anger than the older group.

The comprehension questions provided further insight into what the children identified with the emotion expressed. There were very few inappropriate responses to the “why” question,

and when there were, the children linked their responses to the appropriate eliciting event. The “how” question probed the ability to recognize and express personal consequences of the specific emotions elicited. There was some variability across groups in the way children responded to this question. Some did not address the question, some made off topic comments, but these were categorized as inappropriate.

Based on current understanding of the development of language and emotional maturity, these results are not entirely unexpected. They did indicate, however, that in spite of increased difficulty, in some instances, children with LI were capable of talking about emotional experiences. Many factors may contribute to the difficulties expressing and talking about emotion for children with LI. These may include: language ability and emotion vocabulary, emotion understanding, or even experience in talking about emotions.

#### Relevance to current work

These findings suggested that deficits in emotion understanding exist in children with LI. Activities developed to provide children with LI opportunities to learn and practice skills in emotion understanding may be a critical component of social skills intervention.

Spackman, M., Fujiki, M., Brinton, B., Nelson, D., & Allen, J. (2005). The ability of children with language impairment to recognize emotion conveyed by facial expression and music. *Communication Disorders Quarterly*, 26(3), 131-143.  
doi:10.1177/15257401050260030201

#### Purpose of the Study

This article reports two studies designed to examine emotion understanding in school-age children with LI. The first study consisted of identifying emotion from photographs of faces. The second study consisted of identifying emotions conveyed in excerpts of classical music.

#### Method

*Participants.* The participants included 43 children with LI (21 boys and 22 girls) and 43 gender and chronologically age-matched typically developing children. Each group was divided into two age groups. The younger group consisted of eleven boys (mean age = 7;6, SD = 9 months) and ten girls (6;6, SD = 12 months). The older group consisted of twelve boys (10;9, SD = 8 months) and ten girls (10;4, SD = 10 months).

*Materials used.* For Study 1, a booklet of 24 standardized photographs (four pictures per six emotions) from Matsumoto and Ekman’s (1988) collection of facial expressions of emotion were used. The emotions pictured included happiness, sadness, anger, fear, disgust, and surprise.

For Study 2, twelve 20 s clips were extracted from classical music shown to convey a particular emotion (happy, sad, fear or anger) and used.

*Procedure.* For Study 1, to reduce the verbal demands of the task, cards representing each of the six emotions as well as one card representing "I don't know" were provided for the participants to use in answering the questions. The twenty-four photos were shown one at a time, and the participant was asked to point to the response card indicating how the person felt.

For Study 2, each participant was presented with five cards representing each of the four emotions and an "I don't know" response. After hearing each excerpt, the participant indicated which emotion the music sounded like.

### Analysis and results

For Study 1, the accuracy of response for each emotion (represented by four photographs) was recorded on a five-point scale with 0 for no correct identifications, and 4 for all correct identifications. Happiness was most accurately identified, followed by anger and sadness. Surprise, disgust and fear respectively, produced the highest levels of difficulty. Both language groups performed similarly for the emotions happiness, anger, sadness and fear. The group with LI performed more poorly on disgust and surprise than the typical group.

For Study 2, the pilot tests conducted for identifying emotion in the musical excerpts indicated some variability in responses, so a consensus scoring system was used instead of an objective scoring system. The typical group had higher agreement with the consensus group than the group with LI. The older group also had higher agreement than the younger group. The highest agreement was shown for happiness. Anger, fear and sadness received the lowest ratings. In the group with LI, the boys had higher agreement for fear than the girls. Girls in the typical group, however, had slightly higher agreement than the boys. The girls with LI had higher agreement scores for happiness than the boys with LI, but the typical boys had higher agreement scores than the typical girls for happiness. The older girls had higher agreement scores on fear than the younger girls. Older boys had lower agreement scores than the younger boys. For all groups, the most common confusion was anger for fear.

### Conclusions

On the visual task, the children with LI were able to identify happy, sad, angry and afraid with similar accuracy to that of the typically developing children. They were significantly less accurate in identifying surprise and disgust. On the music task, the children demonstrated significant differences in identifying emotions expressed. The results indicate that children with LI recognize the expression of emotion differently than their typically developing peers. The authors suggest that these differences may be due to multiple and possibly inter-related factors.

### Relevance to current work

The results of this study indicate that children with LI have a greater difficulty than their typically developing peers in accurately identifying emotion. Other studies have indicated that this difficulty is more significant than predicted by level of LI.

Strain, P., Schwartz, I., & Bovey II, E. (2008). Social competence interventions for young children with autism. In W. Brown, S. Odom, & S. McConnell (Eds.), *Social competence of young children: Risk, disability, & intervention* (pp. 253-272). Baltimore: George H. Buchanan Printing.

### Purpose of work

The purpose of this chapter was to identify intervention parameters believed to be essential to maximizing outcomes for children with autism spectrum disorder (ASD).

### Summary

Children with ASD have deficits in social functioning. They seldom initiate social interactions and they tend to not respond to the initiations of others. This may contribute to isolation as well as to discourage peers from interacting with them in the future. Children with ASD also demonstrate a lack of sophisticated play skills. Their play generally consists of highly repetitive and object oriented behavior which is rarely imaginative. Since play is the major context in which peer-to peer interactions occur, this also inhibits their social development. The fact that children with ASD seldom use age-appropriate gestural and verbal behaviors during a social interaction makes it difficult for peers to determine the intent of the behavior, whether the child is having fun, or even what kinds of play the child wishes to engage in.

For these reasons, the primary goal for social competence interventions is to improve the quality and quantity of peer interactions. Using adult-mediated intervention has proven less successful for children with ASD than peer-mediated intervention. In numerous studies over the years, two effective forms of peer mediation have been developed. These include peer training and group oriented contingencies. Peer training has proven successful in increasing positive initiations, improved responses to initiations by others, and increased durations of interaction time. It was also found that when peer-mediated procedures occurred in natural environments, higher levels of social interaction were observed. Peer mediation was found to be most effective when it involved typically developing children. It was found that using these methods, children with ASD could be taught on-topic verbal behavior, were able to follow roles associated with common sociodramatic play scripts, and expanded utterances that resulted in more syntactically complex exchanges. This method was also found to be successful at home in increasing sibling-mediated interactions.

Group-oriented contingencies were also found to increase the rate of interaction and percent of time engaged in positive interactions. Both dependent group contingencies and interdependent contingencies have been reported. Comparative studies have determined that both are equally successful in effectiveness. These methods were also found to be very successful in increasing generalization across people, settings and materials as well as in maintaining those skills over time.

While siblings and peers were effective in implementing the development of these skills, it did not occur naturally. They had to be taught how to interact with children with ASD and how to engage them in social interactions.

The success of these methods of intervention demonstrates that children with ASD can learn skills and behaviors that will increase their social competence. These skills include: asking and answering questions, giving greetings and compliments, understanding the perspectives of others, and imitating peers.

There are certain variables which affect the efficacy of intervention. Each of the variables should be carefully considered when planning and implementing any intervention targeting social competence for children with ASD. These include: fidelity of implementation, functionality of behavioral targets, access to peers who are typically developing, dosage, strategies promoting generalization and maintenance, and social validity. With this understanding, effective intervention may be used to positively and significantly impact the lives of children with ASD.

### Conclusions

Children with ASD have deficits in social functioning. Studies indicate that children with ASD can learn skills which will help them to improve social competence. Peer-mediated intervention has been more successful than adult-mediated intervention. Peer-mediated influences do not occur naturally within inclusive environments. The peers must be trained to interact with children with ASD. These interactions are most successful when they occur within natural contexts. In the development and implementation of effective treatment programs, certain key factors should be considered including fidelity of implementation, functionality of behavioral targets, access to peers who are typically developing, dosage, strategies promoting generalization and maintenance, and social validity.

### Relevance to current work

This chapter summarizes the social difficulties experienced by children with ASD, and contributes to our understanding of social competence for these children. In the current work, two children with ASD are included as participants for an intervention targeting social competence for school-age children with LI.

Swanson, L., Fey, M., Mills, C., & Hood, L. (2005). Use of narrative-based language intervention with children who have specific language impairment. *American Journal of Speech-Language Pathology, 14*(2), 131-143. doi:10.1044/1058-0360(2005/014)

### Purpose of the Study

The purpose of this study was to establish the feasibility of a narrative-based language intervention program. Swanson, Fey, Mills, and Hood hoped to determine whether or not the participants enjoyed the materials and activities used, whether the participants would cooperate willingly in the activities, and whether or not all of the activities could be included in the time allotted. Swanson et al. also hoped to develop a manual for implementing the program and to determine the ability of others to implement the procedures.



## Method

*Participants.* Ten children ages 6;11 to 8;9 with specific language impairment (SLI) participated in the study.

*Assessment Instruments.* The following outcome measures were used: narrative quality (NQ; Fey et al., 2004), number of different words (NDW), developmental sentence score (DSS; Lee, 1974), recalling sentence (RS) subtest of the *Clinical Evaluation of Language Fundamentals Test -Third Edition (CELF-3; Semel, Wiig, & Secord, 1995)*, and nonword repetition (NWR; Dollaghan & Campbell, 1998; Ellis Weismer et al., 2000)

*Treatment.* All children participated in two pre experimental sessions. In the first session, the entrance criteria assessments were administered. In the second session, the participants were required to generate two oral narratives based on two sets of pictures. The first picture contained the characters and setting, the second showed the main character in a problem situation. The third picture depicted a climax. The participants were asked to generate a story for each set.

Each child had a basic goal of increasing the frequency of use of complex grammatical forms found in stories. Three intermediate grammatical goals were selected based on the conversational and narrative samples. Three specific narrative production goals were also selected for each child. A horizontal/cyclical goal attack strategy was used. Twenty-six novel stories were created based on those goals. From this pool, eighteen were used for each child.

Each participant met individually with the therapist for 50 min, three times per week for six weeks. The intervention was based on a hybrid approach which combined skills-based and naturalistic activities. The clinician recast and/or modeled target forms during therapy activities and spontaneous interactions. Each session included a warm-up activity, a story-retell-imitation task, a story generation task, and a repeated retelling task. Following the six weeks of treatment, outcome measures for NDW, NQ, DSS, RS, and NWR were administered. The conversation, narrative and nonword repetition samples were transcribed and scored.

## Analysis and results

Eight of the ten participants made significant improvement for NQ, while only one met the criteria for NDW. Mean pre and post DSS scores showed little or no positive change for conversation and narrative. A slight positive gain was observed from pre and post mean scores for sentence imitation. On the NWR, the children showed no gain.

## Conclusions

A preliminary finding of positive gains for NQ suggested that it may be reasonable to include NQ performance as a future measure of the effects of interventions including the NBLI for children with SLI. The results for NDW indicated that it might not be a sensitive measure of gains in narrative skills.

There were no significant gains for any of the non-narrative outcome measures (DSS, RS, and NWR). Since these were only implicitly addressed, these results were not entirely surprising. Other factors may also have affected these results included shorter duration for treatment, variability in length of language samples, and complexity of content in the narrative samples.

Informal observation indicated an increase in self-confidence from the participants in their narrative skills. They spoke louder and improved eye contact. Initiations during conversations increased, as well as a willingness to share story plots. Most of the children enjoyed the story generation task more than the story retell task. All of the tasks were tolerated by the participants. Prompts and extrinsic reinforcers increased task participation. In the repeated retellings, each story became more elaborate. The most captivating stories for the participants included those that centered on everyday events. Those that were most difficult contained outdated or advanced vocabulary and figurative language.

#### Relevance to current work

While the results of this preliminary study were mixed, it did suggest that NBLI has the potential to promote gains in narrative skills for children with SLI. There are only a limited number of published studies describing the effectiveness of intervention programs targeting social communication skills in school-age children with language impairment. There is a great need for further research exploring the effectiveness of these programs.

Timler, G., Olswang, L., & Coggins, T. (2005). Social communication interventions for preschoolers: targeting peer interactions during peer group entry and cooperative play. *Seminars in Speech and Language, 26*(3), 170-180. doi:10.1055/s-2005-917122

#### Purpose of the work

The purpose of this article was to discuss strategies for designing and implementing effective social communication interventions targeting peer group entry and cooperative play for preschool-age children.

#### Summary

Peer entry and cooperative play are critical for children to communicate needs and wants, persuade peers to change activities, and resolve conflicts. Essential features for social communication intervention include: the selection of communication targets, facilitating use of these targets, practice with suitable peers, and generalization to the natural environment.

In order to better understand peer interaction problems, effective and ineffective social communication behaviors should first be understood. Children who are “socially adept” (p. 172) are able to make multiple attempts to enter peer groups, sustain play interactions by making relevant comments about ongoing activities, respond consistently to peers, and resolve conflicts by compromising or supporting their position using social rules. These behaviors can be used to generate targets for intervention.

According to Timler, the “selection of appropriate targets for children is driven by well-informed assessments” (p. 173). There are two purposes for social communication assessment: identification of children with compromised social communication and identification of appropriate targets and situations for intervention. Standardized testing and language sampling may only provide information regarding language form. Assessment should also include a view of the child’s performance with peers. This may be done by eliciting input from teachers and parents in the form of both questionnaires and interview. When problems are indicated by parents or teachers, observation within the settings indicated should occur. These observations should focus on social communicative behaviors which occur during attempts to enter play with peers, responsiveness during interactive play, and peers’ responses and reactions to the child.

Practice with typical peers is an essential component of an effective intervention targeting social communication in preschool-age children. The selection of peers should include those who are well-liked by other children, willing to participate consistently, will attend regularly, who display frequent and appropriate interactions with other classmates, are compliant with teacher requests, demonstrate appropriate play skills, have the ability to imitate behavior models, and have the ability to concentrate on tasks for extended periods of time. These peers may need training in how to attend to and interact with peers who have language impairments. They may also need prompting and reinforcement. Small group training sessions for peer group entry and cooperative play situations have been demonstrated to be effective in implementing peer practice. This training should involve a brief small group instruction period followed by practice opportunities, first with an adult and later with the target children. The practice section is followed by a review, in which the children can discuss what happened during the practice session and receive positive feedback and reinforcement.

The teach-practice-review scenario is a good start towards achieving generalization. It should be further supported by collaborating with teachers concerning social communication objectives, as well as about the prompts and reinforcements to be used. It is also useful to implement a “classroom therapy” (p. 178) session. This includes a brief review of the target behaviors followed by observation of the child within a peer entry or cooperative play situation, which concludes with feedback about the child’s performance.

## Conclusions

Effective intervention for social communication should incorporate teaching and support target behaviors within the context of classroom routines. They should offer opportunities to practice with typical peers. In preschool-age children, this is especially important for peer group entry and cooperative play because sustained play with peers promotes the development of negotiation and problem solving skills. It also contributes to the future acquisition of friendships.

Relevance to current work

This article describes the social difficulties experienced by preschool-age children with autism. In the current work, two children with autism are included as participants in an intervention program developed to improve social competency in children with LI.

Trauner, D., Ballantyne, A., Chase, C., & Tallal, P. (1993). Comprehension and expression of affect in language-impaired children. *Journal of Psycholinguist Research*, 22(4), 445-452.

### Purpose of the Study

Trauner, Ballantyne, Chase and Tallal examined the ability of children with language impairment (LI) to comprehend and express emotion both verbally and nonverbally. This was done both auditorily and visually, in order to determine whether or not their difficulties might be modality specific.

### Method

*Participants.* Eight children with LI (five boys and three girls) ages 9.25 to 13.58 years, and eight gender and chronologically age-matched children participated.

*Procedure.* Tests of comprehension and expression of emotion were administered to each participant. In order to assess comprehension in the visual modality, the participants individually were presented with a set of three photographs of the same person expressing three emotions (happy, sad, and angry). The participant was asked to identify the expression pictured. In order to assess comprehension in the auditory modality, each participant listened to prerecorded clips of an actress producing neutral content phrases in three different tones of voice (happy, sad or angry). After each phrase the participant was asked to indicate which picture of a facial expression correctly matched the tone of voice.

For the expression of emotion visually, the participants were shown the same three pictures used above, and asked to make the same facial expressions. For the expression of emotion auditorily, each participant listened to pre-recorded phrases similar to those used in comprehension testing. The participants were asked to repeat the phrases exactly as they were heard. To assess spontaneous expression of emotion, visually, each participant was presented with several situations designed to elicit emotional facial expression. The participants were asked to show with their face how they would feel for each situation. Spontaneous auditory expression of emotion was elicited by having the participants complete a series of ten short stories designed to elicit emotion. The participants were instructed to act out the responses with their voices.

### Analysis and results

The audio and video recordings were analyzed by three independent raters unfamiliar with the study. They rated each response as angry, happy, sad or unable to tell, and identified a level of quality to the expression (0 = poor, 1 = fair, and 2 = good). The scores were averaged over the three raters.

All of the participants correctly identified the emotions in the photographs on the visual comprehension task. For the auditory comprehension task, however, the group with LI demonstrated significant impairment compared to the control group. The group with LI actually performed better than the control group on the visual tests of expression, but the difference was not statistically significant. No significant difference was found between groups for the auditory expression task.

In the spontaneous expression tasks, the group with LI performed as well as the control group in the visual modality. The group with LI showed impairments in their imitations of expression in the auditory modality when compared to the control group. In looking at the quality of spontaneous expressions, the children with LI were observed to be very dramatic, incorporating other parts of the bodies into the expression of emotion. For example, they used hand motions to indicate tears, or shoulder motions to mimic sobbing. This was less common for the control group.

### Conclusions

The children with LI were shown to perform similarly to typically developing peers in correctly naming emotions presented through photographs of faces. On visual emotion imitation however, the children with LI were notably more animated in their expressions of emotions than their typically developing peers. The children with LI were also able to imitate the expressions of emotion conveyed by voice, but showed deficits in their ability to either label the emotion or to produce a spontaneous vocal expression of that emotion. The authors theorize that perhaps the overdramatic visual expression of emotions may in part be a compensation for difficulties with vocal expressions of emotion.

### Relevance to current work

Findings from this study suggest that children with LI have an impairment in their ability to perceive and express emotion, particularly that expressed by prosody. Impairment in this ability may result in the misinterpretation of social cues in peer interactions. This will reduce the social competence of the individual. Explicit instruction of emotion may be an appropriate target for social skills intervention in school age children with LI.

Volkmar, F. R., Lord, C., Bailey, A., Schultz, R. T., & Klin, A. (2004). Autism and pervasive developmental disorders. *Journal of Child Psychology & Psychiatry*, 45(1), 135-170. doi:10.1046/j.0021-9630.2003.00317.x

### Purpose of the Study

This review of literature selectively considered key contributions to the breadth and scope of recent research concerning autism and other related conditions.

### Method

*Materials considered for review.* A search of standard databases such as Index Medicus revealed that 2900 articles on autism had been published between Kanner's initial description in 1943 to the year 1989. From 1990 to the publication of this review, over 3700 articles had been published. For this reason, a comprehensive review was not a practical option. Instead, Volkmar, Lord, Bailey, Schultz, and Klin opted to report the major findings and trends of the past decade.

*Procedure.* The terms autism, autistic disorder and childhood autism were used interchangeably. Similarly, the terms pervasive developmental disorder (PDD) and autism spectrum disorder (ASD) were viewed to have the same meaning. The review began with a definition of autism and the diagnostic methods used to identify autism and the broader dimensions of behavior associated with ASD, PDD and other related disorders. Epidemiology was presented next, followed by a review of treatment and intervention. The final section contained suggestions for future directions in research.

## Summary

One important change in the last decade has been the fact that the diagnosis of autism and related conditions has become increasingly standardized. This has been established through acceptance of the DSM-IV (APA, 1994) and ICD-10 (WHO, 1992). Standardized instruments such as the Autism Diagnostic Interview-Revised (ADI-R; LeCouteur, Lord and Rugger, 2003), and the Autism Diagnostic Observation Schedule (ADOS; Lord et al, 2000), as well as greater public awareness have also contributed to this acceptance. These standardized measures allow for clarification of the nature of differences between groups instead of relying solely on meeting or not meeting the requirements of the DSM III-R or ICD-9.

To further develop diagnostic criteria, there have been attempts to find genetic links to some of the factors relating to the social and communication problems defined in the DSM IV and the ICD 10. New instruments have been developed to identify broader behaviors associated with ASD, such as the *Social Responsiveness Scale* (SRS; Constantino, 2002, Constantino & Todd 2003) and the *Children's Communicative Checklist* (CCC; Bishop, 1998).

The inclusion of other disorders generally classified on the autistic spectrum, have generally supported frameworks proposed by the DSM-IV and the ICD-10. Other syndromes like Rett syndrome and Asperger syndrome have been debated much more heatedly.

Children as young as two are now identified. This has provided an opportunity to map trajectories of development and brain behavior. Efforts are now focused on early identification through screening of well-baby and high-risk populations in order to facilitate admission to treatment programs. In addition, co-morbidity with other disorders has become increasingly more acknowledged and considered for its impact on research.

Over thirty epidemiological studies have been published since the mid-1960's. The most striking observation has been the dramatic increase in prevalence. From 1966 to 1991 the rate was 4.4 cases per 10,000. From 1992 to 2001 that rate rose to 12.7. Changes in diagnostic

practice, increased awareness, earlier diagnosis, study design issues, and diagnostic substitution all complicate the interpretation of this increase.

Contrary to Kanner's initial report, there has been little evidence to support an association between social class or race and incidence of autism. Gender however has been found to be a significant factor, with a higher incidence in boys than in girls. Reported ratios are around 3.5-4.0 to 1. Lay press has stimulated investigations concerning reported cluster cases of autism in small communities, but evidence supporting these findings has been weak. Most investigations concerning associations between autism and other medical conditions have failed to provide adequate evidence of such associations. One exception, however, is that of epilepsy which had a mean rate of 16.8%. In addition, recent concerns with a link between autism and the MMR vaccination have not been supported. In other research, attempts have been made to find links to autism through psychological markers, brain mechanisms, and genetic influences. Each of these areas shows promise, but much more extensive research is required to fully understand their relationships to the disorder.

There has been a large volume of research published regarding treatment and intervention. The most important point to understand is that the National Academy of Science (NRC, 2001) has stated that no single approach is best. In fact, research indicates that the incorporation of multiple methods would be most appropriate. This conclusion confounds the many assertions of the 1990's regarding the best treatment approaches that swayed parent and educator selections for treatment. More recently, there has been a push to adopt interventions supported by empirical evidence, and individually selected to address the intervention needs of the client.

While pharmacological treatments are common, especially in clinical practice, their use has not been supported by well-designed placebo-controlled studies. It is important to view these interventions as not "curative" but beneficial in some children to reduce particular symptoms, and enabling the child to benefit from behavioral and educational interventions.

In looking to the future, there are some areas in which there is still a critical need for further research. These areas include: studies of early development, a focus on learning processes, integrating research from multiple disciplines, better methods for early diagnosis, and treatment efficacy studies.

## Conclusions

In the last decade, our understanding of autism and related disorders has grown significantly. Advances in diagnosis have been achieved through inter-disciplinary collaboration, and continue to advance our understanding of the disorder. The development of intervention programs has evolved from early attempts to develop and promote the one and only "cure" to recognizing the benefit of multiple methods selected on the basis of individual strengths and deficits. More importantly, a push for evidence-based best practices has begun to emerge as a basis for selection. That being said, critical directions for research still exist. These include studies in early development, a focus on the learning processes, continued integration of

research from multiple disciplines, better methods for early diagnosis, and more treatment efficacy studies.

#### Relevance to current work

This study defines autism as a disorder including social difficulties experienced by individuals with autism. As part of the systematic review of current research, the need for empirical evidence to support methods for treatment is emphasized. The current work presents an intervention program developed to target social communication in children with language impairment, including two children with autism.



## Appendix B

### Parental Permission Form

**Introduction:** I am Professor Martin Fujiki, Brigham Young University. I am doing research to develop therapy procedures to help children with communication problems improve their social interactional skills. Your child is being invited to participate because he/she is currently receiving speech language services in Alpine School District at Vineyard Elementary School.

**Procedures:** I am asking you to enroll your child in a 10-week study. During this time your child will be enrolled in intervention that will focus on teaching social communication skills. The goal will be to help your child interact more appropriately with peers and adults. Therapy will be provided by a combination of BYU graduate students in Communication Disorders and your child's school clinician. All treatment will take place at your child's school. There will be two to three treatment sessions per week, each lasting 30 to 45 minutes a session. Thus, your child will receive more treatment sessions than would be the case for regular treatment. All treatment sessions will take place during the regular school day. All treatment sessions will be video recorded to allow researchers to analyze the effectiveness of the treatment. The recordings will be erased following completion of the analyses.

As part of the assessment and follow up I will be asking you to complete a social skills questionnaire for your child before and after the intervention takes place.

**Risks/Discomforts:** There are no known risks associated with this treatment. Your child may miss class for one extra session of therapy a week during the course of the study. Your

child's school clinician will either be present or close by during all therapy sessions to handle any questions or difficulties that may arise as a result of working in the treatment conditions. Clinicians and supervisors will consult regularly to make sure that your child is not experiencing any problems in the treatment conditions. The only other discomfort is that the questionnaire I will ask you to complete will take about 20 minutes of your time.

**Benefits:** The primary benefit to your child is the potential growth resulting from receiving more intensive intervention during the course of the study. There are benefits to society in general in that this study may result in more effective treatment methods for children with social communication problems.

**Compensation:** There is no extra compensation associated with participation in the study.

**Confidentiality:** Your child's participation will be confidential. All materials will be stored in locked cabinets in locked labs at BYU. Names will be removed from research materials and neither your name nor your child's name will ever be used in connection with any presentation of this research. Video images will be stored for two years to allow analysis and then destroyed.

**Participation:** Participation is voluntary. If you give permission to include your child in the study, he/she will also be asked if he/she would like to participate. Even if you give consent,

you and your child have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your class status, grade or standing with the school.

**Questions about the Research:** If you have any questions concerning the study, please contact me. My phone number and email address are (801) 422-5994, martin\_fujiki@byu.edu.

### **Questions about your Rights as a Research Participant**

If you have questions regarding your rights as a research participant, you may contact the BYU IRB Administrator, A-285 ASB, Brigham Young University, Provo, UT 84602, 801-422-1461, irb@byu.edu.

I have read, understand, and received a copy of the above consent and of my own free will allow my child \_\_\_\_\_ to participate in the study.

Signature\_\_\_\_\_

Date\_\_\_\_\_

Printed name\_\_\_\_\_

### Video Release Form

As noted above, I will be making video tape recording of your child during participation in the research. Please indicate what uses of these videotapes you are willing to permit, by putting your initial next to the uses you agree to and signing the form at the end.

1. \_\_\_\_\_The videotapes can be studied by the research team for use in the research project.
2. \_\_\_\_\_Short excerpts from the videotapes can be shown at scientific conferences or meetings.
3. \_\_\_\_\_Short excerpts from the videotapes can be shown in university classes.

I have read the above descriptions and give my consent for the use of the videotapes as indicated by my initials above.

---

(Signature)

(Date)

## Appendix C

## Sample Lesson Plan

## RESPONSIVENESS LESSON PLAN 8 (lesson 2 F OHO)

Student Name: \_\_\_\_\_ Date: \_\_\_\_\_

Target Areas: 1) understanding facial expression 2) labeling emotion 3) inferring emotions that situations elicit 4) understanding differing emotions 5) responsiveness in interaction

Objective	Activities	Materials
1. Facial expression Labeling emotion Inferring emotion	Story and journal review from last session	Book: A Frog on His Own
1. Facial expression Labeling emotion Inferring emotion	Play the story Emphasize frog's motives. He wants to go off on his own for a while. He wants to join play or interaction with others but he disrupts play (conversation) instead. Emphasize his intentions (Does he mean to sink the boat?) Model complex sentence forms  Using the book, make dialog bubbles showing what characters want and how they feel in scenarios. Tell the story and read the bubbles with the child. For bubbles, use written words and line drawing of emotion.  Use Mind reading videos to explore emotions and reactions to events	Book'' Frog on His Own  Frog, dog, turtle, cat  Paper, crayons, pictures  Mind reading
2. Understanding differing emotions Inferring emotions	Role play with child a real life scenario reading the emotions of others while entering play and while maintaining play. Example, a boy likes to play with blocks. How might he feel if we ask him to play blocks?	Props as needed
3. Journaling-all appropriate target areas for the activities	Highlight what we learned today. Highlight re: anticipating effects of actions on others	Crayons and markers, journal,

## COMMENTS:

**Subjective:** Presents subjective information/impressions; background information**Objective:** Presents objective information obtained from the session(s)

## Script for Objective 1:

## Introduce A Frog on His Own

1. page one: Reintroduce characters—where are they going? What do you think they are planning?
2. page two: look at what the boy is doing, where is he looking? What is he interested in? How about the dog? The turtle? What is the frog doing? Who knows sees him jumping out? (the turtle)
3. page three: what does the boy do? Who goes with him? What is the frog doing? (waving goodbye). What do you think the frog would wants to do? What is he planning? How would he feel to be alone? How would you feel?
4. page four: Where is the frog? How does he feel? What do you think he might do?
5. page five: What is the frog doing? (Wow! He has a long tongue! He is sticking it out. That surprised me!) Why is he doing that?
6. page six: What does the frog have? Why did he catch the bug? What is he going to do with that bug? Do you think the frog likes to eat bugs? Would you like to eat a bug? (Talk about “disgusting” and feeling disgusted). Different people like different foods. Give some examples. Review previous lunch bag activity.
7. page seven: Look at the frog. How does he feel? (surprised—maybe a little scared). What has happened? What happened to that bug?...
8. page eight: The bug is a big hornet (bee). The bug is flying away. How did the bee get out of the frog’s mouth? What did the bee do to the frog? How does the frog feel? Did you every eat anything that hurt your tongue? How did you feel?

9. page nine: Something different is happening in this picture. Look at these people. What are they doing? Why is the lady sitting on the ground? What are they going to do? Oh wait, where is that frog? Can you see him? He is hiding. He is watching the man and the lady. How does he feel? What would he like to do? (Join the picnic). I wonder what the frog will do. Can you guess?

10. page ten: What are the man and the lady doing? Where is the frog? Oh wow-what is he doing? Why does he want to be in the basket? Do the man and lady know the frog is in the basket? What could happen? How will the man and lady feel if the frog eats the lunch? How will the man and lady feel if the frog jumps out?

11. page eleven: What is the lady doing? Where is her hand? What could happen here? Where is the frog's hand? Does she know there is a frog in the basket? How will she feel if she sees that frog? What will she do?

12. page twelve: What happened? What is the frog doing? How does the frog feel? Does he like the lady? What would he like to do? (Have lunch with the lady?) How does the lady feel? How does the man feel? How would you feel if you found a frog in your lunch? What will happen now?

13. page thirteen: Oh, look what happened. What did the frog do? What is the lady doing? How does she feel? What is the man doing? How does he feel? (Highlight the fact that the lady is mad and the man thinks it's funny. They feel different things.) How does the frog feel? Where do you think he is going?

14. page fourteen & fifteen: Where is the frog now? What can he see? What do you think he would like to do? (play with the boy) Look at this boy. What is he doing? How does he feel? Who else is in this picture? Who do you think that lady is? (Probably his mom)

15. page sixteen: What is the frog doing? Where does he want to be? What does he want to do (ride in the boat?) How does he feel? Look at this boy. What does he see? How does he feel? (surprised)

16. page seventeen: What did the frog do? Does the boy see the frog? How does the boy feel? What do you think he is thinking?

17. page eighteen: What happened to the boat? How did that happen? Did the frog mean to sink the boat? What is the boy doing? How does he feel? What is his Mom doing? How does she feel about it? What about the frog? How do you think he feels? What is he doing? (getting away)

18. page nineteen: Now where is the frog? What can he see? What is the lady doing? What do you think is in the carriage (buggy/stroller)?

19. page twenty: What is the lady doing? Look at the cat? How does the cat feel? What is the frog doing? What does the frog want to do? (play with the baby?) What do you think will happen?

20. page twenty-one: What is the lady doing (getting a bottle out of her bag). Who is in the carriage? How does the baby feel? How does the frog feel? What does the frog want? (play with the baby) Does the mother know that the frog is in the buggy/carriage/stroller? What about the cat? What can the cat see?

21. page twenty-two: What is the mother trying to do? (Feed the baby.) What is going to happen? (The frog will drink from the bottle). Does the mother know the frog is going to drink from the bottle? How does the baby feel? Why? (mad because the frog is going to drink his bottle) What is the cat doing? What do you think will happen?



22. page twenty-three: What happened? What does the mother see? How does she feel? What is the frog doing? What does the frog want? (the bottle) How does the frog feel? What is the cat doing? How about the baby? How does the baby feel? What do you think will happen?

23. page twenty-four & twenty-five: What happened? (The buggy tipped over—maybe the baby fell out) How does the baby feel? What is the mother doing (trying to make the baby feel better). What is the cat doing? How does the cat feel? What is the frog doing? How does he feel? Did the frog want to make the baby fall? What do you think will happen?

24. page twenty-six: What is the cat doing? How does the cat feel? What is the frog doing? How does the frog feel? What do you think the cat wants to do to the frog?

25. page: twenty-seven: What has happened? What was the cat planning to do? How does the frog feel? Look at the cat's face? How does the cat feel now? (scared) Why do you think the cat feels scared? Where is the cat looking? What do you think the cat sees?

26. page twenty-eight & twenty-nine: What is happening? Who did the cat see? (turn page back to 27 and then to 28. (the dot, boy, and turtle). How does the cat feel? (scared) What was the cat scared of? (the dog). What is the dog doing? (scaring the cat away) What is the boy doing? How does the boy feel? Why? How does the frog feel? Why? (He is safe now—his friends saved him from the cat).

27. page thirty: Who do you see on this page? What are they doing? (going home?) How does the frog feel? Why? Review what the frog did on his own. How did things work out for him? Did he get to play with anyone? Why not? Discuss what the boy knows about the frog's day. What do the dog and turtle know about the frog's day. (They only saw the cat encounter).

## Appendix D

## Sample Perspective Chart

Characters	When	Feeling	Why
Boy			
Dog			
Frog			
Turtle			