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The Efficacy of Social Communication Intervention on
Teacher Report of Sociability for Children
with Language Impairment

Julianne Grover Smith Guerra

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

Martin Fujiki, Chair
Bonnie Brinton
David McPherson

Department of Communication Disorders

Brigham Young University

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ABSTRACT

The Efficacy of Social Communication Intervention on Teacher Report of Sociability for Children with Language Impairment

Julianne Grover Smith Guerra
Department of Communication Disorders, BYU
Master of Science

Recent research indicates that many children with Language Impairment (LI) have difficulty with social communication skills. This study assessed the impact of a social communication intervention on teacher perceptions of social withdrawal in children who received the treatment. The intervention targeted emotion understanding using the presentation of children's stories, facial picture cards, and journaling. Teacher perception was measured using the three withdrawal subscales of the Teacher Behavior Rating Scale (TBRIS): Solitary-Active withdrawal, Solitary-Passive withdrawal, and Reticence. Following treatment all five participants received lower ratings of withdrawn behavior on some of the subscales. Only one participant received a rating indicating increased withdrawn behavior (on a single subscale). The most positive indicators of change following treatment were the reduction in Solitary-Active withdrawal for three of the participants and the reduction of Reticent withdrawal for three participants. This study reveals promising results for social communication intervention in children with LI in the area of withdrawn behaviors.

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

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DESCRIPTION OF THESIS CONTENT

This thesis is written in a hybrid form that integrates current journal publication format with the traditional thesis format. This includes updated university requirements for submission and the requirements for submitting research reports to peer reviewed journals in communication disorders. Appendix A includes an annotated bibliography. Appendix B contains the results of the Clinical Evaluation of Language Fundamentals-5 (CELF-5) administered to the participants. Appendix C contains a sample storybook and script used in treatment. Appendix D consists of a detailed description of the intervention procedures used in this treatment.

Introduction

Traditional textbook discussions of children with Language Impairment (LI) often suggest that these individuals have deficits in syntax and semantics but relatively good interactional skills. Research over the last 20 years has demonstrated, however, that many children with LI have difficulty with social communication skills (Brinton & Fujiki, 2014). Social communication can be defined as the use of language “in interpersonally appropriate ways to influence people and interpret events” (Olswang, Coggins, & Timler, 2001, p. 53). Poor social communication skills are likely to have social consequences. One well-documented social problem experienced by children with LI is withdrawn behavior. This study is part of a larger project designed to evaluate an intervention to improve the social communication skills of children with LI. The goal of this specific study was to assess the impact of the social communication intervention on teacher perceptions of Reticent withdrawal in children who received the treatment.

Social Communication Problems of Children with LI

Many studies have demonstrated that children with LI have problems with various social communication tasks. These tasks include accessing (entering) the on-going interactions of peers (Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993; Liiva & Cleave, 2005), participating in negotiations with peers (Brinton, Fujiki, & McKee, 1998), participating in cooperative learning activities (Brinton, Fujiki, & Higbee, 1998), and resolving conflicts (Horowitz, Jansson, Ljungberg, & Hedenbro, 2005; Timler, 2008). Because of the fundamental role that these types of tasks play in social interactions, children who have difficulty with them are likely to experience negative social outcomes. This is the case for children with LI. These children have difficulty developing friendships (Fujiki, Brinton, Hart, & Fitzgerald, 1999), are

rated by teachers as having more behavior problems and poorer social skills than typical peers (Fujiki, Brinton, & Todd, 1996), and are not well accepted by peers (Gertner, Rice, & Hadley, 1994). A difficulty that plays a role in many of these problems is social withdrawal.

It is well documented that children with LI are more withdrawn than their typical peers (Fujiki, Brinton, Morgan, & Hart, 1999; Fujiki, Spackman, Brinton, & Hall, 2004; Hart, Fujiki, Brinton, & Hart, 2004; Redmond & Rice, 1998; Wadman, Durkin, & Conti-Ramsden, 2008). Not all forms of withdrawal are negative, however. For example, Rubin, Coplan, Bowker, and Menzer (2011) discussed two subtypes of withdrawal. One subtype described children who like to play alone. These children may play quietly with toys or be involved in some other solitary, but constructive activity. The other type of withdrawal is more problematic and is characterized by children who are fearful of interacting with others.

Other authors have separated social withdrawal into three subtypes, labeled as Solitary-Passive, Solitary-Active, and Reticent withdrawal (Coplan & Rubin, 1998). Solitary-passive withdrawal is displayed when children play quietly with toys or are engaged in other constructive activities while playing alone (Asendorpf, 1991). Similar to the more positive type of withdrawal described by Rubin et al. (2011), this subtype is generally not considered problematic. Reticence is demonstrated by children who spend a good deal of time both (a) unoccupied (e.g., doing nothing when they should be engaged in a task) and (b) watching play partners without joining the play. Solitary-Active withdrawal consists of repetitive sensorimotor activity and solitary dramatic play (Asendorpf, 1991). These latter two types are problematic because they lead to peer rejection (Harrist, Zaia, Bates, Dodge & Pettit, 1997; Hart, Nelson, Robinson, Olsen & McNeilly-Choque, 1998; Nelson, Nelson, & Evans, 2008).

It should be noted that more recent study has indicated that solitary active withdrawal is better considered as two separate areas. Nelson et al. (2008) labeled these sub-areas as solitary-functional and solitary dramatic play. Solitary-functional is displayed by repetitive sensorimotor action such as hopping, skipping, and rocking without a functional purpose. Solitary dramatic play is demonstrated when children engage in play but do not interact with the play partners. For example, a group of children might be pretending to be pirates while one child pretends to be a pirate in their midst but remains separate and does not interact with them.

In the current study the three subtypes of withdrawn behavior discussed above were monitored to determine if implementing a social communication intervention with children with LI would result in subsequent changes in withdrawn behavior. Of particular interest are the negative subtypes of Reticence and solitary active withdrawal.

Social Communication and Emotional Competence

A variety of factors contribute to effective social communication. Although often assumed to be synonymous with pragmatics, Adams (2005) has argued that social communication requires more than traditional pragmatic skills. Also critical to social communication are basic interactional skills, language processing, and social cognition. One aspect of social cognition that has recently received increased attention in children with LI is emotional competence. Research exploring the connections between emotional competence and social communication will be discussed in the following section. Finally, an intervention addressing specific aspects of emotional competence for children with social communication problems is proposed.

Emotional competence consists of experiencing, expressing, and understanding emotion in the context of ongoing social interaction (Denham et al., 2002). These three basic components

are crucial for success in social developmental tasks. Experiencing emotion is the awareness and recognition of an individual's own emotion. This is a lower level awareness of emotion and is the necessary first step for the higher level activity of emotion understanding. The expression of emotion involves knowing what emotion should be conveyed within the context of social interaction. This requires a balance between what is advantageous for the immediate context and for the relationship over time. All of these behaviors influence each other. Experiencing and expressing emotions contribute to emotion understanding and emotion understanding contributes to experiencing and expressing emotion. There are several recent studies that explore the ability of children with LI to understand emotion expressed by others. These studies are reviewed as follows.

Children with LI have been shown to have difficulty with various aspects of emotional competence, including interpreting emotion conveyed by prosody (Berk, Doehring, & Bryans, 1983; Boucher, Lewis & Collis, 2000; Courtright 1983; Creusere, Alt, & Plante, 2004; Fujiki, Spackman, Brinton, and Illig, 2007; Trauner, Ballantyne, Chase, & Tallal, 1993; Wells & Peppe, 2003), interpreting emotion expressed on faces (Creusere, Alt, & Plante, 2004; Dimitrovsky, Spector, Levy-Shiff, & Vakil, 1998; Holder & Kirkpatrick, 1991; Spackman, Fujiki, Brinton, Nelson, & Allen, 2006;), inferring emotion based on situation (Ford & Milosky, 2003; Spackman, Fujiki, & Brinton, 2006), and dissembling (hiding) emotion when appropriate (Brinton, Spackman, Fujiki, & Ricks, 2007).

Illustrative of research examining the emotion understanding of children with LI, Boucher et al. (2000) examined the capacity of children to identify emotion conveyed by prosody or voice. This study involved four experiments comparing children with Autism Spectrum Disorder (ASD) to both typically developing children and children with LI. The

authors initially thought that children with ASD would score significantly lower than children with LI on voice-face affect matching and vocal affect naming and that children with LI would produce scores similar to a control group of typically developing children. The typically developing children performed better than the children with LI and the children with ASD on the affect-naming test. It was surprising, however, that children with LI scored lower than children with ASD on both tasks.

Spackman et al. (2005) studied the capacity of children to identify emotion from photograph of faces. A group of 43 children with LI and a control group of 43 typically developing age-matched peers were asked to identify emotion expressed on faces. To reduce the verbal demands of the task, children responded by pointing to cards with drawings representing six emotions as well a card representing, "I don't know." It was found that *happiness* was most accurately identified, followed by *anger*, *sadness*, and *fear* in both groups, but groups with LI did significantly more poorly than the typically developing groups at identifying *disgust* and *surprise*. The authors concluded that the ability to identify nonverbal expressions of emotion was closely related to LI.

Ford and Milosky (2003) studied the ability of kindergarteners with LI and their typically developing peers to infer emotional reactions in story presentations. The children with LI made more errors than their peers and were more likely to make valence errors when the intended emotion was misidentified (e.g., confusing a positive for negative emotion). The authors concluded that children with LI demonstrated difficulty integrating emotion knowledge into social inferencing situations regarding emotion.

Spackman et al. (2006) extended Ford and Milosky's (2003) study to older school-aged children with LI. Participants were asked to indicate the emotion (happy, sad, angry, or afraid)

of the main character involved in a scenario and to explain why the character would experience that emotion. The results replicated Ford and Milosky's findings: children with LI performed more poorly than their typically developing peers. The children with LI did not have significant valence errors but there was confusion of emotion within the same valence. In addition, children with LI exhibited a lack of sophistication in talking about emotions, often repeating the same word or responding inappropriately.

A task requiring relatively sophisticated emotion understanding skill is the ability to dissemble (hide) emotion in order to preserve a social relationship. Brinton et al. (2007) presented hypothetical social situations to children with LI and their typical peers that warranted hiding an emotion for social reasons (e.g., a child has a favorite uncle who bakes a cake that tastes terrible). The children were then asked what the child in the hypothetical situation should say. Children in both groups indicated that the child in the scenario should display emotion at a relatively high rate (e.g., tell the uncle that the cake was terrible). Children with LI, however, did so significantly more frequently than their typical peers. Interestingly, when asked what the child's parent would want him/her to say, the differences between the groups was not significant. These results suggest that children with LI have difficulty understanding how expressing emotions can impact personal relationships.

The studies cited above indicate that children with LI have difficulty with a range of emotion understanding tasks. Because emotion understanding is linked with social competence, it is likely that these difficulties have a notable impact on the social interactions of children with LI.

Social Communication Intervention

Even though there is growing evidence that children with LI have difficulty with social

communication problems, there is relatively little research available investigating the efficacy of social communication interventions for school-age children with LI. The American Speech-Language-Hearing Association convened an ad hoc committee to review the published research available examining this question. The committee found that from 1975 to 2008, only 8 intervention studies addressing language use in social contexts for elementary school age children were published. Of these studies, only one addressed any aspect of emotional competence (Gerber, Brice, Capone, Fujiki, & Timler, 2012). Since that time several additional studies have been completed (e.g., Fujiki, Brinton, McCleave, Anderson & Chamberlain, 2013). Perhaps most notable is the work of Adams and her colleagues at the University of Manchester.

In the first randomized control trial for a social communication intervention with children with pragmatic language impairment (PLI), Adams et al. (2012) examined the effectiveness of an intervention designed to improve language skills, functional pragmatic ability, and social cognitive skills such as theory of mind. The trial included 88 children (6-11 years old) with significant social communication needs. Fifty-nine of the participants were randomly assigned to a treatment group and 29 were randomly assigned to a treatment-as-usual group. Each group received 20 sessions of intervention (each session being an hour in length). The results indicated that the social communication intervention was effective in improving overall conversational quality. Both a teacher rating scale and a parent rating scale indicated perceived improvement in some social communication skills in the home and classroom setting. The authors concluded that carefully targeted intervention has potential for change even within a relatively brief period of therapy.

Although Adam's work is an important contribution, it should be noted that social communication intervention covers a wide range of methods and procedures. Thus, there is need

for further investigation to demonstrate the efficacy of these procedures. The present investigation involving an intervention that focused on a particular aspect of social cognition: emotional competence. The goal of this particular study was to explore the teacher perception of withdrawn behaviors before and after the social intervention. Teacher perceptions were examined because teachers have extensive and consistent time observing children interacting with their peers in a social context.

Method

Research Design and Data Collection

As noted, this thesis was one part of a larger project that evaluated the efficacy of a social communication intervention for five children with LI. The larger project employed a single subject, multiple baseline design. The goal of this project was to assess the impact of the intervention on teacher perceptions of withdrawn behavior. The Teacher Behavior Rating Scale (TBRS; Hart & Robinson, 1996) was used to provide a measure of the various types of withdrawn behavior, pre and post treatment.

Participants

Five children (4 girls and 1 boy), ranging in age from 6;1 to 10;1 (years; months) participated. Three of the four girls were sisters. The participants were recruited with the assistance of the speech language pathologist of a local elementary school. Participants were identified as having LI and were receiving language intervention in an elementary school setting. The only boy (age 9;7) was also identified as having borderline ASD. All children had unremarkable hearing status as indicated by pure tone screening by the school district speech-language pathologist. Additionally, all participants had IQ scores within typical limits based on a standardized measure of intelligence administered by a school district psychologist.

The researchers administered the following standardized measures of language to each participant: Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel, Wiig, & Secord, 2013) and the Children's Communication Checklist-2 (CCC-2; Bishop, 2003). The CELF was used to provide a global measure of language for all of the children. The CCC-2 was administered to document social communication difficulties. The results of these tests are presented in Table 1. The subtest scores for the CELF are included in Appendix B.

Table 1

Children's Communication Checklist-2 (CCC-2; Bishop 2006) and Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel, Wiig, & Secord, 2003) Scores

Instruments	Participants				
	Al.K.	S.S.	Ad.K.	M.K.	J.S.
CCC-2 ¹ Subtests					
Speech	1	1	1	1	37
Syntax	9	0	1	1	2
Semantics	5	0	1	2	2
Coherence	2	1	16	2	2
Initiation	50	0	37	25	16
Scripted Language	25	1	37	50	50
Context	25	1	16	2	3
Nonverbal Communication	16	1	9	1	4
Social Relations	16	5	37	1	6
Interests	50	1	91	25	11
GCC ² percentile	4	1	2	1	4
SIDI ³	15	5	36	12	7
CELF-5 ⁴					
Core Percentile	8	2	23	14	7

Note. ¹Children's Communication Checklist-2 (CCC-2). ²General Communication Composite. ³Social Interaction Difference Index. ⁴Clinical Evaluation of Language Fundamentals-5 (CELF-5).

Recruitment was completed as follows. The speech language pathologist reviewed all of the files on her caseload of the children at the school receiving special services for LI and also having social communication deficits. Once appropriate participants were selected, the speech

language pathologist contacted their parents to determine if they would be interested in having their child participate in the intervention. Written permission was obtained from interested parents and names were provided to the researchers. Next, testing was administered and finally, intervention was administered. All intervention administered by the researchers was coordinated with the school speech language pathologist to insure that the services provided met with current IEP goals. Each participant is described in greater detail below.

Al.K. Al.K. (10;1) was a Caucasian female diagnosed with LI in preschool and currently receiving speech language services on a pull-out basis. Her preschool evaluation at age 4;10 revealed articulation deficits with several phonological processes. She was reevaluated at age 6;11 and still presented with velar fronting and cluster reduction. At age 8;0 cognitive and academic testing indicated specific learning disability and services for reading were added. At the time of the study, she was receiving speech and language services and resource for reading. Her speech and language goals focused on articulation and complex syntax to improve production. Al.K's clinician identified her as a child who had friends and was able to participate in social conversations. In general, she had difficulty both making inferences in conversation and adding novel or additional information to a topic. She also had difficulty inferring the emotional reactions of other people in social situations. The clinician also indicated that Al.K had difficulty expressing herself effectively due to semantic deficits and syntax/morphological errors.

Al.K's scores on the CCC-2 indicated difficulty on the nonverbal communication and social relations subtests, as well as the structural areas of speech, syntax, semantics, and coherence. She produced a core score on the CELF-5 on the 8th percentile.

S.S. S.S. (9;6) was a Caucasian male diagnosed as having high functioning autism at age five by his pediatrician. Information from his kindergarten teacher did not support this diagnosis, however. S.S. was also diagnosed with autism at age 8 by a Neuropsychologist at Primary Children's Medical Center, Salt Lake City, UT. As suggested by these reports, there has been some controversy regarding the diagnosis of autism. His current educational team did not agree with the diagnosis of autism.

S.S. was home schooled until age 8;3 when he was enrolled in 2nd grade in a public elementary school. He was diagnosed with LI by the school speech language pathologist at that time. His speech and language services included intervention for articulation and language. S.S. was also receiving special education services for reading, math, and written language. A school-based evaluation at age 9;5 resulted in a diagnosis of specific learning disorder (SLD).

At the beginning of this study, S.S. attended a mainstream 3rd grade class with continued self-contained resource (3 hour maximum). His speech and language goals included fluency, production of grammatically more sophisticated sentences, and appropriate topic manipulation, (initiating, commenting, and changing topics). On the CCC-2 S.S. received scores below the 5th percentile on every subtest. His CELF-5 core language score was on the 2nd percentile.

According to his clinician, S.S. was very motivated to interact socially but often had difficulty adapting behavior to a specific setting. He also had difficulty responding appropriately to topics introduced by others. He could self-monitor and was somewhat self-aware of his own inappropriate behavior, but remained impulsive in the moment. He had difficulty interpreting listener facial expressions, voice inflections, and nonverbal responses.

Ad.K. (7;11) was a Caucasian female. She received a diagnosis of LI and SLD at age 6;4 while in kindergarten. Ad.K. was enrolled in resource for written language and speech and

language services for articulation and language. Her speech and language goals included articulation and language targets. At the start of this study she attended a mainstream 2nd grade. Special education services for reading were added at the beginning of the current school year. Ad.K.'s scores on the CCC-2 revealed a deficit on the nonverbal communication subtest with a score on the 9th percentile. Her scores in the structural areas resulted in a 16th percentile score in coherence and in the 1st percentile in the subtests of speech, syntax, and semantics. Her core language score on the CELF-5 was on the 23rd percentile.

Ad.K.'s clinician commented that Ad.K. was motivated to interact with her peers and could be very "chatty." She could stay on topic, but had little to add to a conversation. She had limited exposure/knowledge of many topics typical to children. Ad.K. appeared to have difficulty interpreting, inferring and/or predicting listeners' responses.

M.K. M.K. (6;7) was a Caucasian female. She was initially evaluated at age 5;7 while attending kindergarten. At that time she was diagnosed with LI and SLD. M.K. was enrolled in resource (for written language & math) and speech and language services. When the study was initiated, she attended a mainstream 1st grade and received self-contained resource (3 hour maximum) with additional services in reading. She also was enrolled in speech and language services with language and articulation goals. Scores on the CCC-2 indicated deficits in the nonverbal communication and social relations subtests. The structural areas of speech and language were also problematic, with scores below the 2nd percentile on all subtests. M.K.'s produced a core language score on the CELF-5 on the 14th percentile.

M.K.'s clinician noted that she was especially 'shy' and spoke at a very low volume in her 1st grade class and in speech and language treatment sessions. Her verbal responses to both teachers and peers were delayed and incomplete. Additionally, M.K. was often off topic and

rarely initiated verbal interaction. She often engaged in activities without expressing emotion, and appeared to have difficulty responding appropriately to other's emotions.

J.S. J.S. (5;11) was a Caucasian female with an initial diagnosis of developmental delay (DD)¹, LI, and a medical diagnosis of attention deficit hyperactivity disorder (ADHD). At age 4, she attended a special needs preschool and an evaluation at that time revealed significant delays in cognitive ability, social/emotional development, and receptive/expressive language. At the time of this study, her diagnosis indicated LI, and J.S. attended a mainstream kindergarten class with resource services for reading and speech and language services. Her communication goals included improving both language and articulation skills. J.S.'s scores on the CCC-2 indicated deficits on the nonverbal communication and social relations subtests, with scores on both below the 6th percentile. In the structural area of speech she was in the 37th percentile but below the 2nd percentile on the syntax semantics, and coherence subtests. She produced a CELF-5 core language score on the 7th percentile. J.S.'s clinician noted that she had limited attention and often said things off topic. The clinician indicated that J.S. does not consistently respond appropriately to questions/comments, possibly due to a lack of sustained attention and low vocabulary.

Intervention Plan

The intervention was structured as followed. Treatment approaches and activities represented best practice to incorporate each child's IEP goals for social-language intervention (Adams et al., 2012; Fujiki et al., 2013). The treatment was administered by a graduate student clinician under the supervision of two university-based doctoral level speech-language

¹All children diagnosed by the school district as qualifying for early intervention services received an initial diagnosis of developmental delay, which was later changed as appropriate.

pathologists and the school speech language pathologist. The treatment sessions consisted of the presentation of children's stories to introduce and practice aspects of emotion understanding. The children met with the clinician two times per week for 15 to 30 minute sessions totaling 20 treatment sessions each. All sessions took place in a quiet room in the elementary school and were video recorded for later analysis.

Baseline (3+ sessions). A single subject multiple baseline design was used. The following three tasks were administered: (a) the child was given a wordless picture book (from the Mercer Meyer frog stories series) and asked to tell the story to the clinician, (b) the child was shown pictures of scenarios expressing various emotions and asked to identify the emotion, and (c) the child was presented with a topic in conversation and allowed to comment with the examiner only producing back channel responses (Brinton, Fujiki, & Powell, 1997).

Each child was also (a) asked to identify pictures of faces expressing various emotions, and (b) provided with a short scenario (story) and asked to state the emotion experienced by the central character (these latter two tasks were only done once). Individual children started the intervention in a staggered order, with two children receiving three baseline sessions and the remaining three children receiving six baseline sessions.

Intervention (20 sessions). Children in the study participated two times per week. Each child received 20 treatment sessions. Participants met individually with the clinician. Each session consisted of a combination of the following steps: (a) story exploration highlighting the emotions experienced by the characters and identification of the sources of those emotions, (b) story enactment depicting emotion and source, (c) emotion picture card games, and (d) journal entry. Flexibility in choosing activities was maintained in order to meet the individual needs of each child. Activities were developed to facilitate social and emotional learning as well as

participation in group interactions and specific prosocial behaviors. All activities were also designed to be accessible to children with limited language abilities. Presentation of the stories was designed to include modeling of complex sentences forms to stimulate structural language development. A sample storybook script is included in Appendix C. A detailed description of the intervention is presented in Appendix D.

Follow-up (3 sessions). The baseline activities were repeated during the three follow up sessions.

Analysis

This study focused on examining the participant's withdrawn behavior using the three subscales of Solitary-Passive withdrawal, Solitary-Active withdrawal, and Reticence from the Teacher Behavior Rating Scale (TBRS). Each child's classroom teacher completed the TBRS before the initiation of treatment (December, 2013) and following completion of the intervention (April 2014).

Instrumentation: The Teacher Behavior Rating Scale (TBRS)

The TBRS (Hart & Robinson, 1996) is an informal rating scale that measures a variety of child social behaviors using teacher ratings. This instrument has been used to study children with LI and typically developing children of pre-school and elementary school age (Fujiki, Brinton, Morgan, et al., 1999; Hart et al., 2004). The scale contains 161 items designed to measure subtypes of aggressive, withdrawn, and sociable behaviors (Fujiki, Brinton, Morgan et al., 1999). In the current study, a shorter 79-item version was used. Teachers completed the TBRS before intervention was initiated and then again after it was completed. All items were rated using a three-point scale (0-never observed, 1-sometimes observed, or 2-very often observed) to compare the child's present behavior to typical age-level expectations.

Psychometric properties. The psychometric properties of the TBRS for elementary-school age children were described in detail in Hart et al. (2004). A factor analysis was used to determine if items were grouped appropriately. To summarize, 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.

Test-retest reliability was assessed by having teachers complete the measure a second time for 94 of the 382 children approximately 4 weeks after the first measure. Having a one month separation between measures was long enough to ensure that the teachers were unlikely to remember their previous responses and short enough to exclude confounding developmental changes in the children between the two measures. All subscales were determined to be reliable over time based on Pearson correlations of .70 for Reticence, .76 for Solitary-Active withdrawal, and .73 for Solitary-Passive withdrawal.

Subscales. For this study three subscales of withdrawal (*Reticence*, *Solitary-Passive withdrawal*, and *Solitary-Active withdrawal*) were used. Each subscale consisted of five questions. These questions are interspersed among the total of 79 questions on the TBRS. The teacher ratings of the *Reticence* subscale included items examining the extent to which the child exhibited fear in approaching peers, watched others without joining in the play, and was unoccupied when there are other opportunities available (Asendorpf, 1991; Coplan & Rubin, 1998; Hart et al., 2004).

The *Solitary-Active withdrawal* subscale described children who were involved in repetitive sensorimotor action with or without an object (e.g., repeatedly jumping up and down and flapping arms). A sample item was, “Talks aloud or sings dramatically around peers, but does not interact with them while doing so” (Hart & Robinson, 1996). In addition, this subscale also included children who acted out roles or animated objects surrounded by other children but failed to interact with those children (Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Hart et al., 2004). A sample item was, “Animates toys near peers without interacting (e.g., pretends doll or stick is alive)” (Hart & Robinson, 1996).

The *Solitary-Passive withdrawal* subscale described behavior produced by children who appeared to enjoy solitary activity such as reading a book or building with toys by themselves away from peers (Asendorpf, 1991; Coplan & Rubin, 1998; Hart et al., 2004; Rubin, 1982). A sample item from this subscale was, “Plays with toys by self rather than with other children” (Hart & Robinson, 1996).

Administration of the TBRS. Teachers were unaware of the details of the intervention and which questions were being used for this research. Teachers were aware of the children’s enrollment in speech language pathology services. 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).

As noted, teachers completed the TBRS before the intervention was initiated and then again after the intervention was completed.

Results

Once the data were collected, only the items of the TBRS relating to the three subscales of withdrawal were scored. The mean scores for each subscale were calculated by adding the ratings for each item in a subscale and dividing that total by the number of items. These mean teacher ratings were then compared pre-treatment and post-treatment. A high score on the withdrawal subscales indicated high levels of the various subtypes of withdrawn behavior being examined. The results for each participant were considered individually due to the small sample size ($n = 5$). The comparisons to typical norms were taken from mean scores for typical boys, ages 10-13, typical girls, ages 10-13, and typical girls, ages 5-8, reported by Fujiki, Brinton, Morgan et al. (1999).

Al.K.

The results of pre-treatment and post-treatment mean scores for the withdrawal subscales of the TBRS for Al.K. are presented in Table 2. This participant's ratings indicated a notable improvement on the two subtypes of greatest concern between pre-treatment and post-treatment performance. According to her teacher's report, Al.K.'s Solitary-Passive withdrawal rating remained stable at .40 between pre-treatment and post-treatment assessments. Her Solitary-Active withdrawal mean rating improved from .50 to .25. In addition, her Reticent withdrawal rating improved with a decrease from .75 to .50. Although Al.K. demonstrated notable gains, all

of her post-treatment ratings were notably poorer than the means reported for typically developing girls of her age.

Table 2

Al.K. Pre-Treatment and Post-Treatment Mean Scores for Withdrawal Subscale on the Teacher Behavior Rating Scale (TBRS)

Subscale	Pre-treatment	Post-treatment	Typical Mean ¹
Reticence	.75	.50	.12 (.14)
Solitary-Active Withdrawal	.50	.25	.00 (.00)
Solitary-Passive Withdrawal	.40	.40	.20 (.19)

Note. Possible range: 0 (never observed) to 2 (very often observed). Number in parentheses indicates standard deviation. ¹Mean scores for 10 typical girls ages 10-13 (Fujiki, Brinton, Morgan et al., 1999).

S.S

Table 3 presents the pre-treatment and post-treatment mean scores on the withdrawal subscales of the TBRS for S.S. Like AL.K., S.S.'s ratings indicated improvement across two domains between pre-treatment and post-treatment performance. His Solitary-Passive behavior improved from 1.60 to 1.40. In addition, his Reticent withdrawal behavior improved from .75 to .25. His Solitary-Active withdrawal behavior remained at 1.00 for both the pre-treatment and post-treatment assessments. All of S.S.'s withdrawal scores, taken both pre-treatment and post-treatment, were notably higher than the reported means for typical boys ages 10-13.

Table 3

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

Subscale	Pre-treatment	Post-treatment	Typical Mean ¹
Reticence	.75	.25	.03 (.07)
Solitary-Active Withdrawal	1.00	1.00	.00 (.00)
Solitary-Passive Withdrawal	1.60	1.40	.18 (.23)

Note. Possible range: 0 (never observed) to 2 (very often observed). Number in parentheses indicates standard deviation. ¹Mean scores for 11 typical boys ages 10-13 (Fujiki, Brinton, Morgan et al., 1999).

Ad.K.

Ad.K.'s pre-treatment and post-treatment mean scores for the withdrawal subscale of the TBRS are presented in Table 4. For Solitary-Passive withdrawal, Ad.K.'s ratings remained constant at .80 for both pre- and post-treatment observations. Her score for Reticent withdrawal also remained stable at 1.25. Her Solitary-Active behavior improved, falling from .33 to .0. This improvement brought her Solitary-Active behavior score more within the range seen in typical peers. The other two withdrawal scores were, however, notably higher than the means reported for typically developing girls ages 5-8.

M.K.

Pre and Post TBRS mean scores for the withdrawal subscales for M.K. are presented in Table 5. M.K. showed improvement in teacher ratings in all three subtypes. The subscales of Reticence and Solitary-Active withdrawal showed the greatest improvement. Reticence behavior

improved from 1.75 to 1.0 and Solitary-Active withdrawal improved from .75 to .25, respectively.

Table 4

Ad.K. Pre-Treatment and Post-Treatment Mean Scores for Withdrawal Subscale on the Teacher Behavior Rating Scale (TBRS)

Subscale	Pre-treatment	Post-treatment	Typical Mean ¹
Reticence	1.25	1.25	.14 (.21)
Solitary-Active Withdrawal	.33	.00	.05 (.14)
Solitary-Passive Withdrawal	.80	.80	.18 (.29)

Note. Possible range: 0 (never observed) to 2 (very often observed). Number in parentheses indicates standard deviation. ¹Mean scores for 8 typical girls ages 5-8 (Fujiki, Brinton, Morgan et al., 1999).

Table 5

M.K. Pre-Treatment and Post-Treatment Mean Scores for Withdrawal Subscale on the Teacher Behavior Rating Scale (TBRS)

Subscale	Pre-treatment	Post-treatment	Typical Mean ¹
Reticence	1.75	1.00	.14 (.21)
Solitary-Active Withdrawal	.75	.25	.05 (.14)
Solitary-Passive Withdrawal	1.40	1.20	.18 (.29)

Note. Possible range: 0 (never observed) to 2 (very often observed). Number in parentheses indicates standard deviation. ¹Mean scores for 8 typical girls ages 5-8 (Fujiki, Brinton, Morgan et al., 1999).

M.K.'s solitary- passive behavior improved slightly with a decrease from 1.4 to 1.2. Although M.K. produced notable improvement, her post-treatment ratings for the withdrawal subscales were lower than the ratings for typical children her age.

J.S.

The pre-treatment and post-treatment mean scores for the withdrawal subscales of the TBRS for J.S. are presented in Table 6. While demonstrating improvement in 2 domains, J.S.'s Solitary-Active withdrawal rating worsened with an increase from .50 to .75. J.S.'s Solitary-Passive withdrawal rating decreased from 1.40 to 1.0. Her reticent behavior also improved from 1.25 to 1.0. Although J.S.'s post treatment ratings showed improvement in two of the three subtypes, all of her post testing scores were notably higher than the means for typical girls ages 5-8.

Table 6

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

Subscale	Pre-treatment	Post-treatment	Typical Mean ¹
Reticence	1.25	1.00	.14 (.21)
Solitary-Active Withdrawal	.50	.75	.05 (.14)
Solitary-Passive Withdrawal	1.40	1.00	.18 (.29)

Note. Possible range: 0 (never observed) to 2 (very often observed). Number in parentheses indicates standard deviation. ¹Mean scores for 8 typical girls ages 5-8 (Fujiki, Brinton, Morgan et al., 1999).

Discussion

Children with LI often exhibit high levels of withdrawal behavior, particularly Reticence. This withdrawn behavior may have negative social consequences such as peer rejection (Hart et al., 1998, Nelson et al., 2008). This study examined the impact of a social communication intervention on teacher perception of three subtypes of withdrawal behavior in children with LI: Solitary-Active withdrawal, Solitary-Passive withdrawal, and Reticence.

Five children diagnosed with LI and presenting with social communication problems participated in this study. The intervention focused on using children's storybooks as the basis for facilitating emotion understanding. The children ranged in age from 5;11 to 10;1 years. The TBRS was administered before and after the social communication intervention program to obtain teacher ratings of the three types of withdrawn behaviors studied. The teachers' responses on the TBRS were examined for observations of change in association with the treatment.

Individual Participant Findings

Each participant's rating of withdrawn behavior, before and after the intervention, is first discussed individually and then general conclusions are presented.

Al.K. Al.K. was the oldest female participant in the study and the oldest of the three sisters. Following treatment, she showed marked improvement on 2 of the subscales, Reticence and Solitary-Active withdrawal, with a 25% decrease in withdrawal behavior. Although ratings of these two subtypes remained high, results were encouraging. Improvement in Solitary-Active withdrawal behavior was important because this behavior tends to have serious negative social consequences and is highly associated with peer rejection (Hart et al., 1998). Additionally, decreases in post-treatment ratings of Reticence were promising according to the observation by

Coplan et al. (1994) that this behavior is highly associated with anxiety and social wariness. Reticence is also common in children with LI, thus a decrease suggests an important change in behavior.

Al.K's Solitary-Passive withdrawal remained the same pre- and post-treatment and was about one standard deviation above the mean for typical girls her age. This subtype 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 and has the most positive connotations of the three types of withdrawn behavior observed. Thus, the stability of ratings in Solitary-Passive withdrawal is not as likely to have negative social consequences as stability in the other subtypes of withdrawal.

S.S. S.S. was the only male participating in the study. As with Al.K, S.S. showed improvement on two subscales. S.S.'s teacher ratings decreased for Reticence and Solitary-Passive withdrawal and remained stable on Solitary-Passive withdrawal. His teacher rating for reticent behavior showed marked improvement with a 50% decline. Although this decrease was encouraging, this latter score was still more than three standard deviations above the mean for typical boys. Less notable was the small improvement in his post treatment Solitary-Passive withdrawal rating, which was still five standard deviations above the mean for boys his age. As previously noted, a high score in this subtype of withdrawal was not as concerning as high scores in the other two areas. S.S.'s rating in the area of Solitary-Active withdrawal remained stable from before to after treatment (at a high rating of 1.0).

Ad.K. Ad.K. was the second oldest female participant and the middle child of the three sisters. Following treatment, she showed marked improvement on one of the three TBRS subscales and remained stable for the other two. Her ratings for both Reticence and Solitary-

Passive withdrawal showed little change. The most promising result was in her score for Solitary-Active withdrawal. Ratings for this behavior decreased two standard deviations, placing her in the typical range. She was the only participant to achieve a score in the typical range on any subscale of withdrawal. Because Solitary-Active withdrawal has negative social consequences, this change was important. It was concerning that Ad.K's Reticence rating remained stable at a rating of more than five standard deviations above the mean for girls ages 5-8.

M.K. M.K. was the youngest of the three sisters participating in the study. Teacher rating for M.K. demonstrated the most promising result of all of the participants. Her scores for all three subscales of withdrawn behavior showed improvement with marked decreases in the two most concerning subtypes: Reticence and Solitary-Active withdrawal. Her scores dropped .75 in Reticence and .50 in Solitary-Active withdrawal. Although these changes were highly encouraging, it should be also pointed out, that her post treatment Reticence rating was still five standard deviations above the typical mean for girls her age. M.K.'s Solitary-Active withdrawal behavior improved to just over one standard deviation above the mean for girls ages 5-8. M.K.'s ratings of Solitary-Passive behavior improved slightly leaving her at four standard deviations above the mean for typically developing peers.

J.S. J.S. was the youngest child in this study. She was the only participant who received a rating indicating increased withdrawal on one of the TBRS withdrawal subscales. Her rating in Solitary-Active behavior increased .25. This increase placed her more than four standard deviations above the mean for typical girls her age. Even though Solitary-Active withdrawal is a relatively rare behavior, Fujiki, Brinton, Morgan et al. (1999) observed that it is highly noticeable by peers and often results in peer rejection.

Both J.S.'s Reticence and Solitary-Passive withdrawal ratings improved in post treatment assessments. Both ratings were still concerning, however, in that they were notably higher than the mean for typical girls her age. As noted earlier, the Reticence rating is more concerning than the Solitary-Passive rating.

General Implications

This thesis was designed to examine changes in teacher perception of the participant's withdrawn behavior before and after social communication intervention. It was encouraging that teacher ratings for the participants improved on ten out of fifteen subscales following the social communication intervention. All but one participant (Ad.K.) improved on at least two subscales following the intervention and one participant (M.K.) improved on all three subscales. One participant (M.K.) improved in one area (Solitary-Active behavior) enough to place her in the typical range for peers her age.

Four participants (Al.K., S.S., M.K., J.S.) demonstrated improved reticent behavior. As noted, reticent behavior is highly associated with anxiety and social wariness. The remaining participant (Ad.K.) received a stable rating in Reticence, remaining the same before and after treatment. It was also of interest that the three participants who were sisters (Al.K., Ad.K, and M.K.) all demonstrated decreases in Solitary-Active withdrawal with two showing meaningful improvement. Ad.K's post treatment rating was within the typical range and M.K.'s post treatment rating which placed her a little over one standard deviation above the typical range. Both were notable decreases from pre-intervention ratings.

Three participants (S.S., M.K., J.S.) improved in ratings of Solitary-Passive behavior and the other two remained stable. As noted previously, Solitary-Passive withdrawal does not carry the same negative social consequences as the other subtypes (Coplan et al.,1994). Children who

demonstrate this subscale of withdrawn behavior, as opposed to Reticence or Solitary-Active withdrawn behavior, generally are less likely to experience social difficulties. Thus, decreases in solitary passive withdrawal are not as clinically significant as decreases in the other subtypes. It may be noted, however, that these decreases likely reflect increased peer interaction. Given that children with LI are generally susceptible to withdrawn behavior, increased interaction with peers is positive and should not be minimized.

The only increase in withdrawn behavior after the social communication intervention was in J.S.'s score for Solitary-Active behaviors—she increased from four standard deviations to five standard deviations above the mean for her typical peers. This increase was concerning because Solitary-Active withdrawn can result in negative social consequences which include peer rejection and social isolation. This behavior also elicits negative attention from peers. J.S.'s lack of progress on this subtype may reflect the fact that the treatment had little impact on her behavior. It may be the case that her diagnosis of ADHD may have made her less able to take advantage of the intervention. It might be speculated that given the extent of her behavior, more extensive treatment would be needed to make a meaningful difference in behavior.

Limitations of the Study

There were a number of limitations to the study that may have influenced the results. These potential limitations are discussed as follows. Although the TBRS was a reliable and valid instrument, it was still subject to some of the general limitations of rating scales (Merrell, 2003). Although there are a number of advantages to sampling teacher ratings (e.g., the ability to capture rarely occurring but important behaviors), the ratings still represent impressions and not actual observations of behavior. Additionally, rating scales are subject to various sources of error variance, including source variance, setting variance, and temporal variance. Ratings can

be impacted by the unique impressions of an individual rater. They may also be influenced by behaviors specific to a unique setting (in the present study, this would be the school setting). Additionally, raters may be overly influenced by more recently occurring behaviors. Additional data from other sources will be needed to confirm whether the teacher ratings are a true indication of each child's performance.

It might also have been the case the teachers were influenced by the fact that the children were participating in a study and were predisposed to see positive changes in the children's behavior. With respect to this point, it should be noted that teachers were not aware of the specific goals of the study. Further analysis of the TBRS data may help to determine the extent to which positive expectations influenced the data. Analyzing all of the behavioral subtypes will make it possible to determine if the ratings increased even in areas that should not have been impacted by the intervention.

Given that this study only reflects one aspect of a larger project, the current results should be interpreted with caution. As additional data are analyzed it will be possible to more confidently reach conclusions about the efficacy of the intervention. The combined results of all data in the larger study will indicate whether changes in teacher perception were related to changes in child behavior or were influenced by factors external to the child. However, it must be recognized that these data from the TBRS are an important contribution to the overall understanding of each child's response to the treatment.

Summary

The goal of this specific study was to examine the impact of the social communication intervention on teacher perceptions of withdrawn behaviors in children with LI. Although there was variability between participants, all of the participants were reported to demonstrate positive

changes in withdrawn behaviors following intervention. In addition, more than half (3 of 5) were reported to demonstrate a decrease in the most negative types of withdrawn behavior. These changes suggest a positive influence on social behavior resulting from this social communication intervention.

This study is part of a much larger investigation designed to evaluate an intervention to improve the social communication skills of children with LI. In the context of the larger investigation, additional instruments will be used to measure other changes in behavior following treatment. When all measures are combined, it will be possible to obtain a more representative picture of gains related to the intervention targeting emotion understanding. The current study, examining teacher perception of withdrawn behavior, makes an important contribution to this overall picture, but by itself is somewhat limited. Thus, caution should be exercised in drawing both positive and negative conclusions.

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Appendix A

Annotated Bibliography

Adams, C. (2005) Social communication intervention for school-age children: Rationale and description. *Seminars in Speech and Language, 26*, 181-188. doi: 10.1055/s-2005-917123

Purpose of the Study

In this article, Adams notes that there is a growing population of school age children with social communication problems in need of speech-language intervention. He states that that social communication problem (SCP) is a descriptive term for a set of observable deficits in communication and not a single diagnostic entity. The rationale and framework for intervention is based on the interdependence of four aspects: social interaction, social cognition, pragmatics and language processing. There is little of no research to support the selection of appropriate interventions for school age children with SCP. The interventions presented in the article are flexible and can be adapted for the wide range of children who have SCP (which include LI and ASD).

Method

Participants. A single-case study series of six school-age children (aged between 6;0 and 9;11) with PLI was reviewed to investigate the effects of the proposed intervention framework. One case of an eight-year-old male (aged 8;1 at the onset of the study) with significant impairment in all four aspects of social development was investigated in detail.

Procedure. The participant received 24 therapy sessions using the intervention framework as a guide.

Analysis and Results

Parent and teacher report was used to analyze the participant's progress post-intervention. The participant showed dramatic gains in conversational skills that generalized to home and school, however, some pragmatic problems still remained. Additional gains were reported in tests of recall and formulation of sentences with modest gains in inferential comprehension and narrative tests.

Conclusions

The author's social communication intervention framework intervention is based on theoretic principles recognizing the interdependence of four key elements. This model can provide guidance for intervention across diagnostic boundaries. The framework needs more systematic testing for efficacy in a large-scale study and with varied populations.

Relevance to the current work

Adams stated that social communication involves many aspects that may be deficits in children with communication disorders. The current study involves a social communication intervention involving emotion competence as one of those aspects.

Adams, C., Lockton, E., Freed, J., Gaile, J., Earl, G. & McBean, K. (2012). Implementation of a manualized communication intervention for school-aged children with pragmatic and social communication needs in a randomized controlled trial: The Social Communication Intervention Project. *International Journal of Language and Communication Disorders*, 47, 245-256. doi: 10.1111/j.1460-6984.2012.00147.x

Purpose of the Study

The aims of the present study were to examine the effectiveness of an intensive manualized social communication speech and language intervention in improving language skills, functional pragmatic ability, and broader social communication of children with LI using a small-scale randomized controlled trial. This was the first randomized controlled trial investigating the effectiveness of intervention for children who have pragmatic language impairment (PLI).

Method

Participants. Eighty-eight participants were studied—with 59 randomly assigned to the SCIP group and 29 randomly assigned to the treatment-as-usual (TAU) group. The children were 5;11 - 10;8 years of age. Participants met the criteria of pragmatic communication problems, attended mainstream primary education, were currently enrolled in regular and on-going SLT services, spoke English as the primary language, were not diagnosed as having ASD, and had no evidence of severe difficulties in emotional development, behavioral needs, unintelligibility, or hearing.

Procedures. Using a randomized control design, children in the SCIP condition received up to 20 sessions of direct intervention (one hour per session) for up to three sessions per week. All therapy content and methodology was derived from an intervention manual. Outcome measure was taken pre-intervention, immediately post-intervention and at 6-month follow-up.

Analysis and Results

Analysis was done on outcome measures using linear regression and logistic regression with adjustment for age. The primary outcome measure was the CELF-4 Core Language Standard Score (CLSS). The secondary outcome measures were the Targeted Observation of Pragmatics in Children's Conversation (TOPICC), the Children's Communication Checklist, the Expression, Reception and Recall of Narrative Instrument (ERRNI), and a Parent-reported outcome (PRO) measure and teacher-reported outcome (TR0) measure.

The standardized measure of overall language performance (CELF-4 CLSS) and the standardized measure of narrative ability (ERRNI) did not show a significant intervention effect. Significant effects were found for SCIP intervention compared with the TAU, on observed conversational abilities (using raters blind to group membership), for teacher and parent-reported social communication, social behavior and language skills, and pragmatic functioning (at 6-month follow-up, but not immediately following intervention.)

Conclusions

The intervention with SCIP was effective at improving overall conversational quality (but not structural language skills) in 6-11 year olds who had significant pragmatic and social communication needs. It was also perceived by parents and teachers as improving some functional pragmatic and social communication skills in the home and classroom. With carefully targeted specialist intervention, there is potential for some change even within a brief period of therapy. Some children may require longer periods of intervention. Changes in individual children varied widely.

Relevance to the Current Work

This general social communication intervention was done with children with pragmatic language impairment. This group overlaps with the population under treatment in the current study. The children were shown to make significant gains which were observed and noted by parents and teachers in the surveys taken before, during and after intervention. This study documents the overall effectiveness of social communication intervention. My study will measure gains as observed by teachers with a small group six of children.

Asendorpf, J. (1991). Development of inhibited children's coping with unfamiliarity. *Child Development*, 62, 1460-1474. doi:10.2307/1130819

Purpose of the Study

This study investigated the distinct subtypes of solitude: Solitary-Passive, Solitary-Active, and inhibited (Reticence) behavior as coping styles when responding to unfamiliar peers. The increase of these subtypes of social withdrawal over development into middle and late childhood was also considered. The author noted that there is prior research suggesting a correlation between the tendency toward social withdrawal in younger children and internalizing difficulties found in older children. In other words, if the temperament of a young child predisposes that child toward inhibition, the child may demonstrate a tendency toward more social withdrawal during middle and late childhood. Other social interactional behaviors and parallel play were analyzed as measures of alternative coping styles.

Method

Participants. A sample of eighty-seven children (46 boys, and 41 girls) recruited from a larger longitudinal investigation (the Munich Longitudinal Study on the Genesis of Individual Competencies) participated in this study. These children were four, six, and eight years old.. The children attended 20 preschools in the Munich area. These 87 children participated in dyadic free-play sessions with unfamiliar peers.

Procedures. The *Parental Inhibition Scale* was administered concurrently with the play sessions which contained questions that could be rated on a 7-point scale ranging from never to always. The sessions were videotaped and the subject's behavior was coded at 15-second 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

Parental judgment of inhibition indicated high correlations between the three parental inhibition judgments (age 4-6, .68; 4-8, .72; 6-8, .81). These were aggregated to produce a mean parental judgment that was used to reflect the measure of dispositional inhibition in the children. 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. 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 eight than they did at age six.

Conclusions

The inhibited children demonstrated a developmental shift toward longer periods of Solitary-Passive activity while the control group shifted toward longer periods of social-interactional behavior. When older inhibited children did engage in nonsolitary play, their play was still more passive than the play of control children. The authors suggest that Solitary-Passive withdrawal is associated with inhibition and lost its initial negative correlation with parallel play.

Relevance to the Current Work

This study indicates that the motivation to engage in social interaction may be influenced by many factors. The author examined the relationship between dispositional inhibition and withdrawn behaviors in children. Solitary-passive is associated with inhibition and lost its initial negative correlation with parallel play. My thesis explores the withdrawn and sociable behaviors of children through the eyes of their teachers using the TBRS and this work informs my thesis about Solitary-Passive withdrawal as not being necessarily a negative form of withdrawal.

Berk, S., Doehring, D., & Bryans, B. (1983). Judgment of vocal affect by language-delayed children. *Journal of Communication Disorders, 16*, 49-56.

Purpose of the Study

The authors explored the relationship between linguistic and paralinguistic development by comparing judgments of vocal affect by children with delayed language to children with typical language.

Method

Participants. Thirty-eight children were recruited as participants. The 19 subjects with language delay included six girls and 13 boys aged 5-11 (mean age = 8:7) who were currently

receiving speech and language services. The majority of these children had severe problems with receptive or expressive language as indicated by formal assessment, and about half the recruits had articulation difficulties. None were intellectually, emotionally, or physically handicapped. Two of the children had behavior problems in school. Nineteen typically developing children included nine girls and ten boys without language problems.

Procedures. All subjects were tested individually. Each subject was shown three drawings expressing sad, happy, and angry and were all successful at labeling them correctly. A tape recording of a girl talking was played and each participant was instructed to indicate if she was happy, sad, or angry by pointing to the appropriate drawing each time she spoke.

Analysis and Results

The total correct responses for each subject were charted. The group with language-delay was significantly less accurate than the typical group in judging vocal affect.

Conclusions

The authors conclude that more studies should be conducted with larger groups of children in whom receptive and expressive language disorders have been more systematically specified. In addition, more studies are needed to determine how the ability to judge vocal affect varies as a function of age and gender. They determine that children with LD cannot fully comprehend *what* is being said if they fail to recognize *how* it was said. They suggest that therapy should be expanded beyond training in the purely linguistic aspects of expression and comprehension.

Relevance to the Current Work

This study indicates that children with LI have difficulties that extend beyond linguistic form and content, extending into comprehending the vocal affect of communication. The emotion understanding of affect is included in the therapy intervention approach of my thesis to increase social communication.

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, 847-857. doi:10.1111/1469-7610.00672

Purpose of the Study

While it is well known that individuals with autism have difficulty processing emotion expressed on faces, there is little known about voice processing of emotion for these individuals. The purpose of this study was to replicate and extend earlier findings on voice processing in autism using four experiments with controls made up of language-matched children with specific language impairment (SLI) and mainstream children.

Method

Participants. A group of 19 children with autism and a group of 19 children with specific language impairment (SLI) took part in all four experiments. A group of 19 mainstream children took part in Experiment 3 and 4.

Procedures. There were four experiments. Experiments 1 and 2 used language-matched children with SLI as controls. Experiment 3 and 4 used language-matched children with SLI and young mainstream children as controls. The four experiments assessed: (a) familiar voice-face and sound-object matching, (b) familiar voice recognition, (c) unfamiliar voice discrimination; and (d) vocal affect naming and vocal-facial affect matching.

Analysis and Results

Mean scores were analyzed for the groups with autism and SLI in experiment 1 and 2. In experiment 1, 2, 3 and 4, a mean score was analyzed for the group with autism, the group with SLI and the group of mainstream children. In experiment 1, a three-way analysis of variance (groups, schools, and conditions) showed a significant effect of condition. In experiment 2, a two-way ANOVA (schools x groups) showed no main effects and no interaction. A one-way ANOVA was used for experiment 3 and showed no differences between the groups. All three groups scored significantly above chance. For experiment 4, a two-way ANOVA (group x condition) showed a significant main effect of group.

Experiment 1: The prediction was that (a) earlier findings of impaired voice-face identity matching in children with autism would be replicated and that (b) voice-face matching would be more impaired in children with autism relative to controls than sound-object matching. However, children with autism were not impaired relative to children with SLI so the first prediction was not confirmed. The second prediction was also not confirmed in that children with SLI showed a larger within-subject difference than the children with autism in favor of sound-object matching.

Experiment 2: The prediction that familiar voice recognition would be impaired in children with autism relative to controls was not confirmed. The two groups performed very similarly to each other.

Experiment 3: The prediction that children with autism would not show impaired voice discrimination was supported. The children with SLI also showed unimpaired voice discrimination, relative to typically developing controls.

Experiment 4: The prediction was that the study would confirm existing findings showing that children with autism have impaired voice-face affect matching and vocal affect naming. This was partially supported. The children with autism performed worse than the typically developing controls on the affect-matching task. They did not perform worse than the typically developing controls on the affect-naming task. They also performed better on both tasks than the children with SLI.

Conclusions

The findings in this study were unexpected. It was assumed that children with SLI would not have impairments in processing emotional stimuli when language ability was controlled. Based on this assumption, the authors predicted that children with autism would be impaired

relative to children with SLI on Experiment 1, 2, and 4. The authors predicted that children with autism would not be impaired relative to controls in experiment 3. Two predictions were supported: the children with autism were impaired compared to typically developing children on the test of affect matching, and their unfamiliar voice discrimination was unimpaired. It was a surprise that the children with SLI performed similarly to the children with autism on the tests of familiar voice-face identity matching (Experiment 1) and familiar voice recognition (Experiment 2). In addition, the children with SLI were not only impaired relative to they typically developing children on the tests of voice-face affect matching and vocal affect naming, they actually performed significantly worse than the children with autism on both of these tests (experiment 4).

Relevance to the Current Work

This study indicates that children with SLI (corresponding equally to what is today entitled Language Impairment or LI), have difficulty with voice-face affect matching and vocal affect naming or the emotion conveyed by prosody. This is outside of the language deficit which was controlled for, indicating a need for more research into emotional competency and social processing in children with LI and therapies to address these issues. The current work addresses therapy intervention into social competence for children with LI.

Brinton B. & Fujiki, M. (2012). Social and affective factors in children with language impairment: Implications for literacy learning C. A. Stone, E. R. Silliman, B. J. Ehren, & K. Apel (Eds.), *Handbook of language and literacy: Development and disorders* (2nd Ed.). New York, NY: Guilford.

Purpose of the Work

Brinton and Fujiki discussed and described the social and emotional difficulties faced by children with LI. The authors describe the research investigating the difficulty in both social and language development that children with LI often experience.

Summary

The author's described the case study of a 4-year old boy with LI followed into adulthood demonstrating the long term prognosis of difficulties. They cited the research involving social interaction of children with LI. Children with LI have demonstrated a difficulty in entering and maintaining access in ongoing play. They exhibit fewer prosocial strategies in social interaction with higher levels of Reticence as well as higher victimization. These characteristics carry through into adolescence and adulthood. Children with LI exhibit emotional deficits which include depression and low self-esteem, have difficulty with accessing conversations, cooperating in groups, resolving conflicts, and many other areas of social communication. Research has also shown that children with LI have difficulties with many aspects of emotional intelligence including perceiving, understanding, and regulating emotion. Along with language deficits, Social and emotional deficits observed in children with LI affects their acquisition of literary skills. Literary skills are often a part of social interactions such as book sharing or

accessing classroom literary activities. These factors contribute to difficulties with academic success.

Conclusions

This chapter describes social communication deficits of some children with LI and their effects over time. Brinton and Fujiki note that children with LI will vary in these deficit characteristics. The social and academic contexts are highly affected by these deficits, particularly by emotional competence.

Relevance to the Current Work

This chapter emphasizes the difficulties that children with LI have in social, emotional and language development. The author's describe the impact of emotional competence on social communication in children with LI. The current study implements and evaluates an intervention target to improve emotional competence in children with LI thus improving social and academic success.

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*, 1193-1206. doi:10.1044/1092-4388

Purpose of the Study

This study examined children with SLI and their involvement and cooperation in group tasks by analyzing verbal and nonverbal collaborative activity during triadic interactions with their age-matched peers. In addition, authors examined individual patterns of interaction displayed by children with SLI as they worked in a cooperative task.

Method

Participants. Fifty-four children between the ages of 5 and 12 participated in the study. The children were divided into 18 triads with 1 target child and 2 partners assigned. The target children consisted of 6 children matched to the children with SLI for either language scores (LS) or chronological age (CA). Each target group consisted of 3 girls and 3 boys. The six target children with SLI were selected using the following criteria: aged 8-10 years old, IQ above 85, normal hearing, language impairment based on standard scores at least 1 *SD* below the mean on the CELF-R (Semel, Wiig, & Secord, 1987), enrollment in speech and language services at least two years before the study began. Children in the LS group were identified comparing CELF-R language-age equivalent scores within six months to the children with SLI. Children in the CA group were matched to the children with SLI on the basis of chronological age. All of the target children interacted with two typically developing children of the same chronological age and gender.

Procedures. The children in each triad were asked work together to build a periscope out of materials given them. The children were seated at a table with the target child seated between

the two partners. The administering clinician provided only minimal suggestions if asked for help. The sessions were video recorded and no time limit was given.

Analysis and Results

Each sample was transcribed and analyzed to assess the involvement of each child in the interaction. Each sample was coded for two main aspects of participation: verbal and nonverbal collaborative group activity. These were then combined in order to measure each child's overall collaborative interaction. The collaboration between the three members of the triad was examined. Verbal behavior was analyzed in 15 second intervals. If two or more children spoke about the same topic in that interval, those children were scored as being collaborative during that interval. The number of collaborative intervals was converted into a percentage out of total intervals in the sample. Nonverbal behavior was analyzed in a similar manner being scored as collaborative if the subject performed activities associated with building the periscope such as coloring or cutting.

Children with SLI were less effective in the verbal collaborative involvement as expected. The subgroup with SLI talked less and verbally collaborated in fewer intervals than their partners, but the difference did not reach statistical significance. Children with SLI also retreated from the construction task of building the periscope more than either of their partners resulting in differenced for nonverbal collaboration in the SLI triads.

Conclusions

There was a fairly balanced collaboration between members of the CA and LS triads. The SLI triads were highly variable, however. Even so, overall, children with SLI were not as verbally collaborative as their partners and retreated from the construction task. Despite these negative outcomes, cooperative learning tasks offer potential advantages for children with SLI by working productively with peers who can provide good models for language and social behavior (although the present study task structure was inadequate to support the children with SLI).

Relevance to the Current Work

This study demonstrated how children with LI contribute less to cooperative group tasks (both verbally and nonverbally) than their peers. This study adds data to the argument that children with LI struggle in social interactions. My thesis examines the efficacy of social communication intervention for children with LI targeting emotion understanding. The resulting sociability of children with LI is observed by teacher behavior ratings.

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

Purpose of the Study

The purpose of this study was to examine the way children with SLI participated in a task that demanded negotiation and joint decision making in a group context. The authors 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 aged 5-12 participated in this study. The children were divided into 18 triads, each consisting of a target child and two partners. The target subjects include six children with SLI, six CA matches, and six LS matches. All of these children interacted with 2 partners matched for gender and chronological age. Three triads in each group (SLI, LS, and CA) contained all female subjects and three contained all male subjects.

Procedure. During previous activity, each of the children in a triad earned three poker chips. Children were presented with a box containing various snacks. Each snack was marked with a numerical value indicating the number of poker chips needed to purchase the item (four to nine chips). The participants were instructed to work together in combining chips and making a selection.

Analysis and Results

The data were analyzed by calculating the number of utterances produced, identifying and categorizing them into negotiation strategy levels, and determining the mean level of strategy production by the participants within each triad. Target subjects with SLI produced fewer (but not significantly fewer) utterances than did their partners, however, they were the only subgroup that was consistently much less influential in the negotiation process. 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 by children with SLI decreased.

Conclusions

The authors conclude that children with SLI are unable to use their verbal skills at a level commensurate with their age and experience within important social tasks. The quality of their interaction is reduced by their lack of age-appropriate negotiation strategies. The social growth and social acceptance of children with SLI might best be served with intervention designed to help them express their own perspectives effectively while recognizing the perspective of others.

Relevance to the Current Work

This study suggests that children with SLI have difficulty expressing their own perspectives and recognizing other's perspectives in negotiating interactions. This is an aspect of social communication. Children with LI have difficulty with social communication tasks which include participating in negotiations with peers.

Brinton, B., Fujiki, M., Spencer, J. C., & Robinson, L. A. (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*, 1011-1025.

Purpose of the Study

This study examined the ability of children with SLI to enter and participate in ongoing dyadic interaction. In addition, when successful access to the conversation occurred, this study examined verbal production, verbal utterances addressed to the subject, and collaborative activity with peers.

Method

Participants. Fifty-four children (aged 5-12) participated in this study. Eighteen triads consisting of one target child and two partners were assigned. The target participants included six children with SLI; six chronologically age-matched (CA) children; and six language scores (LS) children. All of the children interacted with two partners matched for gender and chronological age. Each target group consisted of three boys and three girls. Children in the group with SLI met the following criteria: between 8-12 years old, IQ above 85, normal hearing, standard score on the CELF-R (Semel, Wiig, & Secord, 1987) at least 1 *SD* below the mean, and enrolled in speech and language services for at least two years before the study began. Typically developing partners were age and gender matched. The CA and LS group did not demonstrate any academic, behavioral, communication or hearing difficulties according to school records and teacher reports.

Procedures. Before data collection began, all participants were told they would be talking to two other children for about 20 minutes. After access, the investigator had the child with SLI sit between two partners at a table, introduced toys and encouraged the partners to play with the toys. When the children began to interact with one another, the investigator left the table and was not visible to the children and was only allowed to provide minimal responses if approached with questions.

Analysis and Results

Each of the samples was recorded by video, transcribed and analyzed for the number of utterances produced by each child which included who spoke to whom and how often each partner was spoken to. Once access to the conversation was granted, each sample was analyzed for the following target child behaviors: hovering, sitting down with the triad, individual play at or away from the table, collaborative play, or other.

Of the 18 target children, 16 successfully accessed the conversation with the two children not accessing belonging to the group with SLI. There was not a significant difference between groups in the time required to access the interaction, however, 9 of the 12 CA and LS targets successfully accessed the conversation in less than three minutes while all of the SLI took longer than three minutes. Children with SLI always produced the fewest number of utterances in their triad though all three triad member produced more utterances after access to conversation began than before in CA and LS triads.

Conclusions

The results of this study indicate that children with SLI had difficulty accessing ongoing interactions and once access was granted, did not contribute as much to the interaction as their peers. The authors suggest that consideration of language ability and social skills is important in intervention with SLI. Future research is needed to identify specific language-social behaviors that would better equip children to handle a variety of interactional contexts and those behaviors would be viable targets for intervention and research, and eventually used clinically.

Relevance to the Current Work

This study documents that children with SLI have difficulty in social interactions. My thesis involves an intervention to target emotion understanding in a social communication intervention to improve social interactional skills.

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*, 798-811. doi:10.1044/1092-4388(2007/055)

Purpose of the Study

This study compared a group of children with LI and a group of typically developing peers as controls, to determine if they would dissemble (hide) emotion when presented with specific scenarios according to social rules.

Method

Participants. A group of 38 children were participants in this study. A group of 19 children with SLI from ages 7;9 to 10;10 and a group of gender and chronologically age-matched (CA) typically developing peers were studied.

Procedure. Ten hypothetical social situations with a gender neutral main character named Chris were created to illicit five emotions: *happiness, sadness, fear, anger, and disgust*. Each situation was presented and followed by questions assessing their comprehension of the story, the intended emotion, the need for dissemblance, and their grasp of display rules.

Analysis and Results

After coding the responses, descriptive analyses were performed using random effects logit models to determine significant differences in the groups of children answered questions with dissembled emotions. Both groups answered the comprehension questions correctly for the 10 hypothetical situations. Children with SLI selected fewer dissemble and more display strategies than did their typical peers. Male participants selected fewer dissemblance strategies than did female participants.

Conclusions

This study indicated that children with SLI did not dissemble emotion significantly more frequently than did typically developing children. Children in the groups did not differ with respect to their awareness of the rules of dissembling emotion as indicated by their indications of when Chris's parents would want him to dissemble emotion.

Relevance to the Current Work

The authors of this study indicate that children with LI have difficulty with emotion recognition and expression in specific social situations. My thesis evaluates an intervention for children with LI, acknowledging and addressing the intertwined and significant relationship between emotional and social competency.

Analysis and Results

Coplan, R., & Rubin, K. (1998). Exploring and Assessing Nonsocial Play in the Preschool: The Development and Validation of the Preschool Play Behavior Scale. *Social Development, 7*, 75-91. doi:10.1111/j.1467-9507

Purpose of the Study

The primary purpose of this research was to develop and validate teacher rating scales for use in assessing the multiple forms of young children's solitary behaviors.

Method

Participants. The participants were thirty-nine preschool children (23 females and 16 males) between the ages of 37 and 59 months ($M = 49.18$, $SD = 5.58$) for Study 1. For Study 2, three hundred thirty-seven preschoolers (164 females and 173 males) ranging in age from 33 to 68 months ($M = 51.56$ mos., $SD = 9.07$) participated. This included the thirty-nine participants from Study 1.

Procedure. For Study 1, free play behaviors were coded using Rubin's (1989) *Play Observation Scale* for both social participation and cognitive quality of play. The *Preschool Play Behavior Scale* (PPBS) was completed by at least 2 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).

For Study 1, the PPBS results for each participant were compared to the observed behavior of that participant. Each participant was observed over a period of approximately three months on ten separate occasions for a series of twelve ten-second intervals during free play per occasion. Each participant had a total of 120 10 sec. coding intervals.

Analysis and Results

For Study 1, correlations between teacher-rated and observed forms of social and non social behaviors were assessed to determine the construct validity of the PPBS resulting in

moderate to high correlations. For discriminant validity, correlations were computed between teacher ratings of reticent, Solitary-Passive and Solitary-Active behaviors resulting in only 2 of the 18 correlations reaching significance. For Study 2, exploratory factor analysis was used with the data from the subscales of the PPBS. Social play, Solitary-Passive behavior, rough-play and Solitary-Active behavior confirmed an association items. The correlations between the five subscales were moderately inter-related. Convergent and discriminate validity were established by analyzing the relations between the PPBS subscales and the CCTI and PBQ.

The results of the convergent and discriminate validity found reticent behavior 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

In this study, the authors conclude that PPBS demonstrated potential as an accompaniment or replacement for time-consuming behavioral observations in assessment of young children's nonsocial and social behaviors during free play. The results of this study suggest an acceptable level of discriminant validity for the nonsocial items in the PPBS.

Relevance to the Current Work

My research uses the TBRS as a means of assessing the participant's nonsocial and social behavior. This study of a preliminary version of a teacher-based report of social and nonsocial behaviors in children supports the validity of using this type of instrument for research purposes.

Coplan, R., Rubin, K., Fox, N., Calkins, S., & Stewart, 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

The purpose of this study was to investigate the heterogeneity of socially withdrawn behaviors in preschool-age children in three subtypes of withdrawn behaviors: Reticence, Solitary-Passive activity, and Solitary-Active activity.

Method

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

Procedures. The participants were assigned to 12 quartets of unfamiliar same-sex peers who were age matched. 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. Behaviors in the play sessions were videotaped and coded in ten-second intervals using Rubin's (1989) *Play Observation Scale*. Mothers of the participants completed the *Colorado Temperament Inventory*.

Analysis and Results

The 10-sec intervals were coded for social participation and cognitive quality of play. 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 included solitary-functional and /or solitary-dramatic play. The results replicated previous work establishing the presence of multiple and independent forms of solitary behavior. The results indicated that children who demonstrated anxiety were more likely to produce reticent behaviors but not likely to produce Solitary-Passive or Solitary-Active behaviors. Reticent behavior was also associated with hovering on the edge of social groups. Passive withdrawal was not associated with anxiety, social wariness, shyness, and impulsivity.

Conclusions

The authors suggest that this study replicates and extends the literature on social withdrawal in childhood including the observation that children with anxiety were more likely to produce reticent behaviors and not more likely to produce Solitary-Passive or Solitary-Active behaviors. The authors conclude that solitude is an insufficient criterion for characterizing children as socially withdrawn. The author's findings were consistent with the results of previous studies characterizing Solitary-Active play as reflecting impulsivity and immaturity and the meaning of different forms of solitude appear to change with age.

Relevance to the Current Work

In identifying and describing three types of withdrawn behavior and underlying motives, this study informs the Teacher Behavior Rating Scale (TBRS) which I use to measure withdrawn behaviors observed in children with LI.

Courtright, J., & Courtright, I. (1983). The perception of nonverbal vocal cues of emotional meaning by language-disordered and normal children. *Journal of Speech and Hearing Research*, 26, 412-417.

Purpose of the Study

The purpose of this study was to compare children with LI to typically developing children in their ability to interpret emotional meaning from the prosody (loudness, pitch, rate, rhythm, intonation, etc.) of an adult speaker.

Method

Participants. The participants consisted of 49 children (33 boys and 16 girls) ages 3-7 years old. Twenty-five were children (aged 3;1 to 7;3) with LI (moderate to severe). Twenty-four subjects (aged 3;2 to 6;11) were typically developing. A spontaneous language sample was obtained from each child in this study and analyzed using the *Developmental Sentence Scoring* procedure. Each child was administered the *Peabody Picture Vocabulary Test* and a nonverbal interpretation task.

Procedures. The *Measurement of Vocalic Sensitivity* was developed to measure children's sensitivity to the vocal cues of emotion using only male voices. Children would respond by pointing to the picture which matched the recorded emotional expression of *happiness, anger, loving, and sadness*. Each child was cued to match picture with emotions, and when successful, completed the task of listening to the pre-recorded emotions and pointing to the "picture of the man talking on the tape."

Analysis and Results

The dependent variable was the number of correct responses (out of 12) produced by each child. Results indicated that children with LI scored significantly lower on this measure than did their typically developing peers. When the two variables of chronological age (CA) and gender were taken into account statistically, the difference between the two groups became even larger. The findings suggest that children with LI are less sensitive than their typically developing peers to vocal cues of emotion and are best accounted for by concomitant differences in the children's language age.

Conclusions

The authors conclude that this study indicates that children with LI are less sensitive to prosodic cues of emotion than their typically developing peers.

Relevance to the Current Work

This study adds evidence to the research that children with LI have difficulty with interpreting emotion conveyed by prosody. The current work provides a foundation for my work on social competence and interpreting emotion.

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

Purpose of the Study

The purpose of this study was to examine the access behaviors of children with SLI and compare them to those of children with typical language skills.

Method

Participants. Thirty-eight children (13 subjects and 25 partners) were recruited for this study. The subjects included 5 children with SLI (three boys and two girls) and 8 typically developing children (4 chronologically age-matched (NL-A) and 4 language skills matched (NL-L)). All subjects and partners demonstrated typical hearing. Partners were gender- and age-matched to the subjects in their respective triads.

Procedures. All interactions were video recorded. The participants were randomly sorted into triadic conversation groups with 2 partners. The partners were introduced and instructed on the use of building blocks to encourage cooperative play. Once the partners were engaged, a target subject was brought into the room and introduced to the 2 partners. The examiner left the room for the 20 minutes and the subject was left to access the ongoing activity of the play partners.

Analysis and Results

In each session, verbal and nonverbal portions of the experimental language samples were transcribed orthographically from the videotapes. Temporally defined access episodes were identified as successful or unsuccessful in outcome. The subject and partner behaviors were scored as task-related and task-unrelated. Successful access episodes consisted of the subject taking an unrejected turn in the play and awareness of at least one partner in this interaction. An access episode was considered unsuccessful when the subject did not take a turn by the end of the 20-min session.

All typical children and two of the children with SLI successfully accessed the interaction. Three children with SLI did not achieve access within the 20-min sample and had profiles indicating lower receptive skills than those of the two subjects with SLI who did achieve access. The subjects who failed to achieve access did not approach the partners or did very little that was task-related. They simply observed the partners interacting.

Conclusions

Only subjects with SLI did not successfully access in this linguistically and structurally simplistic context. Children with SLI must access larger and more complex social interactions in their school and community. The authors suggest that children with SLI who are unable to access peer play will be unable to form friendships, to learn from peers, and to be socialized in the ways most children are. The authors also found that success was achieved for children with SLI with better receptive language skills.

Relevance to the Current Work

This study adds support for the argument that children with SLI have difficulty accessing interactions. This affects social relationships and social communication.

Creusere, M., Alt, J., & Plante, E. (2004). Recognition of vocal and facial cues to affect in language-impaired and normally-developing preschoolers. *Journal of Communication Disorders*, 37, 5-20. doi:10.1016/S0021-9924(03)00036-4

Purpose of the Study

This study examined the ability of children with SLI to interpret emotional prosody. In addition, this study looks at comprehension of emotion for dynamic displays of facial expression vs. static ones as well as considering the simultaneous presentation of prosodic and facial cues of emotion on response accuracy.

Method

Participants. The participants were 52 English-speaking children between the ages of 4:0 and 6:5. Twenty-six (6 girls, 20 boys) participants had specific language impairment (SLI) and twenty-six (6 girls, 20 boys) participants had normal language (NL). The groups were matched based on gender and chronological age (+ or – 2 months). Scores from formal language testing documented significant differences in language skills for the NL and SLI groups.

Procedures. Stimuli were presented to participants via computer with a brief explanation of the nature of the stimuli. The stimuli included the following cue situations: (a) facial expression and unfiltered speech; (b) lowpass-filtered speech only; (c) facial expression only; and (d) facial expression and filtered speech. After each item, the experimenter asked the child a forced-choice question measuring his or her interpretation of the emotion conveyed. There were two versions of the questionnaire for each stimulus set, which differed only by the valence of the emotion given for the incorrect response.

Analysis and Results

The results of a mixed ANOVA indicated that children's recognition of affect was influenced by the type of cues available to them. With-in group comparisons revealed more differences between conditions for the NL group than for the group with SLI. Significant correlations were found for four pairs of variables for the NL group. In contrast, a significant correlation for the group with SLI was found on two pairs of variables. The results indicate that the NL group and the group with SLI differed only in two of the four items tested which included facial expression and unfiltered speech.

Conclusions

The evidence in this study suggests that children with SLI may miss cues to speakers' emotional states and, therefore, are likely to face challenges when determining communicative intentions, which rely at least partially on emotional inferencing. The authors suggest that the data highlights the claim that deficits in pragmatic skills may accompany other impairments of language. The authors state that the impeded ability of the subjects to interpret affective information places them at risk for poor social competence and adjustment.

Relevance to the Current Work

This study, using facial and verbal cues of affect, indicates that children with SLI have deficits in interpreting emotion putting them at risk for poor social competence. My study is involved in targeting facial and verbal cues of affect as key elements of an intervention to determine improvement in social competence as indicated by teacher observation.

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

Purpose of the Work

Denham defines and describes the development of emotion in toddlers and preschoolers and its components: expression, understanding, and regulation. She also discusses delayed emotional competence and possible intervention.

Summary

Denham describes the developmental history of emotion in children and the interdependence of social and emotional competence. The three components of emotion are described as emotion expression, emotion understanding, and emotion regulation which change during child development. She has conducted a thorough and systematic review of the research literature on children's emotion understanding, suggesting areas where further research is needed.

Conclusions

From the research evidence, Denham concludes that children's emotional development is highly dependent on parental support and modeling. She suggests that early intervention is necessary as an intervention targeting emotional competence in children with language difficulties and gives suggestions for intervention procedures. She indicates that the research has shown that emotional intervention can relate to improvements in social functioning.

Relevance to the Current Work

Denham gives a definition of emotional competence and breaking it down into its components. She develops the concept of the dependent relationship between emotional competence and social competence and the importance of targeting these skills in intervention backed by her research review. This gives background and context to my work which presents an intervention designed to improve social communication through the medium of emotion understanding in children with LI.

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

Purpose of the Work

In this chapter, Denham, von Salisch, Olthof, Kochanoff and Caverly address three major goals. The first is to outline how social development tasks differ across childhood and clarify and define the role of emotion within each period. The second goal is to describe aspects of emotional competence relating to social interaction and relationship building. The final goal is to discuss existing research on how emotional competence contributes to social competence within a developmental framework across differing relationships (parents, peers, and friends).

Summary

Adaptive social functioning changes as children develop from preschool and through grade school. In addition, during development, there is an accompanying parallel reorganization of ways to deal with emotional issues. The author's model for emotional competence follows a partially independent developmental path and focuses on three basic components for success in social developmental tasks: experiencing, expressing, and understanding emotion.

The authors discuss relationship-specific interconnectedness of emotional and social competence including parent-child relationships, peer relationships, and within friendships. Each is explored within the framework of experiencing and regulating emotion, expression emotion, and understanding emotion exploring existing research. The authors explore the direction that might be advantageous such as longitudinal studies, gender differences and cultural effects.

Conclusions

There is an intertwining between emotional and social competence that become even more pronounced during development. A key aspect of the development of social competence is the development of competence in experiencing, expressing, and understanding emotion.

Relevance to the Current Work

Social and emotional competence are interdependent. The current work explores social communication intervention in children with LI. Aspects of emotion competence are a primary focus.

Dimitrovsky, L., Spector, H., Levy-Shiff, R., & Vakil, E., (1998). Interpretation of facial expressions of affect in children with learning disabilities with verbal or nonverbal deficits. *Journal of Learning Disabilities*, 31, 286-292, 312.

Purpose of the Study

In this study, the authors examined differentiated subgroups of children with LD (nonverbal deficits, verbal deficits, both nonverbal and verbal deficits) and their nondisabled peers, for the purpose of studying their ability to identify six basic emotions from facial expressions.

Method

Participants. The participants ranged in age from 9 to 12 years. There were 76 students (54 boys and 22 girls) who met the criteria for learning disabled (LD) and 48 students (29 boys and 19 girls) without disabilities as a comparison group. All participants were Caucasian, middle class, and resided in Israel for at least the past four years. The subgroups with LD had achievement test scores at least 2 years below grade level and an absence of extreme behavioral or attentional difficulties, and absence of neurological problems.

Procedures. The participants were administered the Ekman and Friesen's (1976) Pictures of Facial Affect (PFA), a Hebrew version of The Rey Auditory Verbal Learning Test (AVLT; Rey, 1964), and The Benton Visual Retention Test (BVRT; Benton, 1974) of visual perception and memory. Each student was tested individually and seen once for between 75 to 90 minutes with break times.

Analysis and Results

Participants were classified as those with verbal deficits (VD), nonverbal deficits (NVD), or both verbal and nonverbal deficits (BD) based on their performance on the Rey AVLT and the BVRT.

A two-way ANOVA yielded a significant main effect for group and a trend for main effect for age. The interaction between group and age was not significant. The Post hoc comparison of means revealed that nondisabled and VD groups were significantly more accurate in identifying facial expressions of emotions than were the NVD and BD groups, and the nondisabled group was significantly more accurate than the VD group as hypothesized by the authors. A t-test analysis revealed a significant difference in favor of the older group for fear and disgust. A three-way MANOVA of group, age, and emotion revealed significant interactions between group and emotion and between age and emotion. All three groups with LD were less accurate than the nondisabled group in identifying facial expression of emotion. Most participants in all categories, with or without LD, achieved a perfect score in identifying happiness and accuracy in descending order was anger, surprise, sadness, fear and disgust. Gender was not a factor in interpretation of emotion.

Conclusions

The children with nonverbal dysfunctional LD were at the greatest risk for the development of social and personal problems relating to emotion recognition. The authors suggest that focused instruction as to how to express feelings appropriately and how to interpret others' expressions of emotions may be required.

Relevance to the Current Work

Our work focuses on developing intervention strategies that address emotion understanding.

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*, 21-30. doi:10.1044/1092-4388(2003/002)

Purpose of the Study

The aim of this study was to determine if children with LI have difficulty identifying facial expressions of emotion and if these children can use facial expression knowledge with other information to make social inferences.

Method

Participants. This study involved 24 kindergarteners with twelve children diagnosed with LI in one group and twelve chronically aged (CA) matched typically developing children in another group. Each group had six boys and six girls with a mean age of 5;9 in the LI group and a mean age of 5;8 in the CA group. All participants were assessed to determine eligibility. The two tests used were 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).

Procedures. Four picture cards depicting the emotions *happy, surprised, mad, and sad* were used. Nine stories were used to evaluate emotional inferencing. Each emotion and each story was depicted in three modalities: visual only, verbal only, and visual/verbal concurrently. The visual drawings depicted a faceless person in a common situation and its resolution. Verbal stimuli consisted of a three-sentence story that corresponded to the drawings used. Both drawing and short stories were presented together for visual/verbal presentations. For the production task, the child was asked to identify how the person felt in response to the presentation of four drawings of facial expressions. In the comprehension task, the child was asked to point to the stated emotion (given by the researcher). In the inferencing task, the child was presented with four facial expression drawings and several stories about a particular emotion and then asked to fill in the face that completed the story.

Analysis and Results

Both groups of LI and CA were 100% accurate in labeling *happy, sad, and mad* in the production task. Both groups were 100% accurate in the comprehension task. Children with LI were not as accurate at making emotional inferences for all four emotions on the inferencing task as their CA matched peers. The group with LI was more accurate on the visual/verbal task than with visual presentation only. Children with LI made more valence errors in misidentifying emotions than did the control group.

Conclusions

This study suggests that children with LI differ from their typically developing peers in processing social information. Though both the LI and CA group were able to identify the four emotions, children with LI demonstrated difficulty integrating this emotion knowledge into

social inferencing regarding emotion. Children with LI made more valence errors than the control group when inferencing.

Relevance to the Current Work

This study demonstrates that children with LI have difficulty with emotional inferencing. Our intervention will address this important aspect of social communication in children with LI.

Ford, J. A., & Milosky, L. M. (2008). Inference generation during discourse and its relation to social competence: An online investigation of abilities of children with and without language impairment. *Journal of Speech Language and Hearing Research, 51*, 367-380. doi: 10.1044/1092-4388(2008/027)

Purpose of the Study

This study examined the ability of children with LI and typically developing children to make emotion inferences during discourse, identify variables that predict emotion inferencing, and to determine the relationships between those variables and social competence.

Method

Participants. Sixteen children with LI (eight boys and eight girls age 4;6-5;7) and sixteen children with typically developing language skills (TL) (7 boys and 9 girls age 4;6-5;7) participated. Children in both groups scored at least 90 on the nonverbal subtests of the Kaufman Assessment Battery for Children (KABC). Children in the TL group scored at least 90 on the receptive subtests of the Clinical Evaluation of Language Fundamentals-Preschool (CELF-P) and children in the LI group scored more than 1 SD below the mean on the CELF-P.

Procedures. Seven tasks were individually administered in a single session lasting one hour. The inferencing task involved the presentation of 36 short stories (18 experimental and 18 filler stories) with a facial expression following the experimental stories. In one half of the stories, the facial expression matched the implied emotion and in the other half it did not.

The receptive subtest of the CELF-P and a confrontational naming task (CT) were used to measure language. The CT involved having the participants name the gender and emotion of 40 pictures of faces as fast as they could without making mistakes. As measures of quality of word knowledge, the children were asked to draw pictures of themselves happy, sad, and afraid and then give examples of what made them feel that way. Cognition was assessed using the nonverbal subtests of the KABC. To determine if the children with LI required more time to make inferences, response times were measured. The social competence of each child was measured using the Preschool Kindergarten Behavior Scales-Second Edition (PKBS-2).

Analysis and Results

Analysis of children's abilities to infer emotions in discourse comprehension revealed that children in the TL group were significantly faster than children with LI at naming the emotions in matched conditions and children of both groups were faster at naming matched settings for emotions than mismatched settings. Children with LI responded to both the matched

and mismatched settings with the same speed. CELF-P score, confrontational naming time, emotion situation knowledge, and vocal response time were found to influence inferencing ability. The PKBS-2 indicated that the ability to draw facial expressions and make emotional inferences were both significantly related to social competence.

Conclusions

The authors conclude that children with LI often fail to make emotion inferences and these difficulties are related to language and response time measures. The study also demonstrates that the ability to make emotion inferences was related not only to discourse comprehension, but also to social competence.

Relevance to the Current Work

This study is relevant to my thesis in demonstrating that children with LI often have deficits in emotion inferencing.

Fujiki, M., Brinton, B., Hart, C., & Fitzgerald, A. (1999). Peer acceptance and friendship in children with specific language impairment. *Topics in Language Disorders, 19*, 34-48. doi:10.1097/00011363-199902000-00005

Purpose of the Study

The purpose of this study was to examine how well elementary school aged children with SLI were accepted by their peers and how many friends they had in their classes.

Method

Participants. This study included eight elementary school age children (seven girls and boy aged 6:1-10;7). All eight were previously diagnosed with SLI, earned test scores of at least 1 *SD* below the mean on formal language assessments, demonstrated typical intellectual ability and typical hearing, and were enrolled in speech and language services at the time of the study.

Procedures. A single examiner administered assessments (peer rating and friendship nomination) to the classmates of each target child with SLI to examine peer acceptance and mutual friendship relationships. The classmates were shown pictures of each classmate and asked to sort them into three circles (first and second grade) or circle the faces (fourth and fifth grade) depicting a happy face, neutral face, and sad face. After this activity, each child was asked to name his or her three best friends in the class.

Analysis and Results

A 3-point scale was used for peer rating: 1 indicated they did not like to play with the child, 2 indicated that they “kinda” liked to play with the child, and 3 indicated that they liked to play with the child a lot. Overall and gender-rating scores were calculated for each child. To determine the presence of reciprocal friendships for the peer acceptance task, each child’s

answers regarding their three best friends were compared across the classroom. Classmates rated three of the eight participants with SLI at least 1 *SD* below their class means. Five of the eight children were never named among anyone's top three friends. Three first grade girls with SLI had reciprocal friendships with at least one other girl who was also identified with SLI. Surprisingly, one first grader with SLI was identified as a best friend by six children and had two reciprocal friends.

Conclusions

Compared to their typical peers the children with SLI were generally rated as being poorly accepted (results for each individual were highly variable from classmate to classmate). The authors suggested that social communication was one area that needed to be addressed more often and intensively when treating children with SLI. Some proposed procedures for facilitation included utilizing authentic contexts, flexible educational programming, and collaborative teamwork among professionals and parents.

Relevance to the Current Work

This study demonstrated that children with SLI often lack quality friendships and are viewed negatively by their peers (however, individual children with SLI can be well accepted by peers).

Fujiki, M., Brinton, B., McCleave, C. P., Anderson, V. W., & Chamberlain, J. P. (2013). A social communication intervention to increase validating comments by children with language impairment. *Language Speech and Hearing Services in Schools, 44*, 3-19. doi: 10.1044/0161-1461(2012/11-103)

Purpose of the Study

This study presented a pilot intervention with children with LI emphasizing the production of validating comments within familiar social contexts.

Method

Participants. Four children from the same elementary school and identified with LI (three females and one male; ages 6;4-9;4) were participants in this study. Each participant was enrolled in the mainstream classroom and received pull-out speech language services. Each of the four children performed at least 1 *SD* below the mean on a standardized language test and had typical hearing and visual status. Assessment ruled out any cognitive and behavioral disorders. Social information for each child was provided by the classroom teacher completing the Teacher Behavior Rating Scale (TBRS). Children with typically developing (TD) language were randomly selected to participate in the baseline, follow-up sessions, and weekly intervention sessions with the participants with LI. All participants in this group corresponded in gender and grade with the LI group and were typical academic performers enrolled in mainstream classrooms without enrollment in special services.

Procedures. Each child was observed in three 20-minute cooperative learning activities with two typically developing peers, for baseline and follow-up assessments. Each week for 10 weeks, instructional sessions were administered to introduce, discuss, and rehearse access behaviors and cooperative play behaviors which included the teaching of validating comments. Additional sessions included opportunities for each target child to play with two typically developing peers in a game setting. The children were instructed to practice the target behaviors taught during instructional sessions with these control peers. The clinicians reviewed sessions and target behaviors with the participants consistently.

Analysis and Results

The clinicians examined validating comments and negative comments produced by the target children and their peers by viewing sessions (all sessions were video recorded). All four children produced validating comments in almost every intervention session. The fourth grade participant demonstrated the largest increase in validating comments during therapy which was maintained during follow-up. Two of the three first grade participants showed an increase in validating comments and one showed a decrease in negative comments. In social outcomes measures, two of the children who demonstrated increases in validating comments were also perceived by their teachers as being more likeable and prosocial by the end of the 10 week intervention; however, three of the children showed little change in peer acceptance measures and one child even decreased.

Conclusions

Although the social communication intervention did not impact peer perceptions, it was encouraging to the authors that an increase in validating comments was associated with somewhat improved teacher perceptions of likeability and markedly improved teacher perceptions of prosocial behavior. Even though social difficulties were not resolved, this study demonstrated that each of the four children could successfully learn to make positive comments to their peers.

Relevance to the Current Work

This study guides and informs my current thesis targeting social communication intervention for children with LI through emotion understanding using Teacher Behavior Rating Scales to determine social changes observed by teachers.

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, 183-195. doi:10.1044/0161-1461

Purpose of the Study

The purpose of this study was to compare aspects of withdrawal and sociability in children with LI to typically developing peers using the TBRS as the measurement.

Method

Participants. For this study, 82 children were selected for study, including 41 children with LI and 41 typical peers. Children in the groups were matched for gender and chronologically age. Each group had 20 children (8 girls and 12 boys) between the ages of 5;5 and 8;2 and 21 children (10 girls and 11 boys) between the ages of 10;2 and 12;10.

Procedure. The Teacher Behavior Rating Scale (Hart & Robinson, 1996) was administered to the teachers of all of the participants.

Analysis and Results

A general pattern of performance was identified using mean levels produced by typical children in each subtype used as a standard of performance. Eight children with LI performed within the typical range on all five subtypes while 25 typical children performed in this range. The greatest difference reported was in reticent behavior, which was more prevalent in children with LI. Solitary active withdrawal was relatively rare reported in both groups of children; however, boys with LI demonstrated significantly higher levels. Solitary-passive withdrawal ratings did not significantly differ between the groups. The sociability ratings indicated that almost every child in the group with LI who demonstrated Solitary-Active withdrawal or Reticence also demonstrated limited sociability.

Conclusions

The authors conclude that children with LI have higher levels of Reticent withdrawal and lower levels of likeable and prosocial sociable behavior than typical peers. They also suggest that LI, by itself, does not seem to provide a complete explanation for these social problems. They suggest that language and social competence are highly intertwined.

Relevance to the Current Work

In the current work, the TBRS will be used to measure teacher perception of social behavior subtypes. The results indicate that children with LI often have difficulties characterized as increased withdrawn and reduced sociable behavior in social communication. This research suggests that the deficits in language for children with LI do not always account for the level of social difficulty they display. Because of the social impact on children with LI, my work will study social communication intervention with children with LI to improve social functioning. I will also be using the TBRS as was done in this current study.

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*, 637-646. doi:10.1044/1092-4388(2004/049)

Purpose of the Study

The purpose of this study was to determine the extent to which language ability and emotion regulation predict Reticence withdrawal in children with SLI.

Method

Participants. Eighty-six children were recruited for this study. Forty-three children with SLI were grouped based on the following criteria: between 5-8 and 9-12 years old, nonverbal IQ above 80, diagnosis of SLI by a speech language pathologist and enrolled in speech and language services at the time of the study, performance of at least 1 *SD* below the mean on a standardized language assessment, and typical hearing and behavior. Forty-three children demonstrating typical developing language skills were gender- and age-matched (within six months for all but three children) to each of the children with SLI.

Procedures. Each teacher completed the Teacher Behavior Rating Scale (TBRS) and the Emotion Regulation Checklist (ERC) for two children (one participant with SLI and one typical classmate). The TBRS was used to measure withdrawal and sociable behaviors. The ERC was used to measure two aspects of emotion regulation. The Comprehensive Assessment of Spoken Language (CASL) was also administered to each participant as a measure of language ability.

Analysis and Results

The ERC and TBRS scores of children with SLI were compared to the scores of typical peers in order to determine areas of difference. Regression analysis indicated that ERC and CASL scores were significant predictors of Reticence scores. Each predictor alone, however, was not found to be a significant predictor of Reticence. In addition, both language level and emotion regulation scores were uniquely but equally correlated to Reticence scores.

Conclusions

The teacher reports indicated that children with SLI demonstrated more Reticence and less ability to regulate their emotions than their typical peers. This was evident particularly in the elevating of emotions when appropriate. Language ability and emotion regulation were found to be strong predictors of Reticence in children with SLI. The results indicated that factors other than language contribute to the social difficulties of children with SLI.

Relevance to the Current Work

This study suggests that children with LI have difficulties with various aspects of emotional competence including emotion regulation. This study adds more supporting data to the argument of my thesis that children with LI might benefit from an intervention program which targets emotional competence and the efficacy of that intervention as analyzed by teacher behavior rating questionnaires.

Fujiki, M., Spackman, M. P., 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*, 330-345. doi: 10.1080/13682820701507377

Purpose of the Study

The purpose of this study was to examine the ability of children with LI to understand emotion conveyed by prosody in a narrative passage.

Method

Participants. The sample included thirty-eight elementary school-aged children including 19 children with LI (11 girls and 8 boys; ages 7;9-10;10) and 19 typically developing children (11 girls and 8 boys; ages 7;9-10;10) who were gender and age-matched to each of the participants in the LI group. The children with LI met the following criteria: previous identification of LI, standardized test scores, and current enrollment in speech and language services at the time of the study.

Procedures. The participants were presented with recordings of a single short narrative read by actors expressing different emotions (*happiness, anger, fear, and sadness*). The participants were presented with 16 recordings (four representing each emotion) and asked to indicate which emotion the actor expressed.

Analysis and Results

Children with LI had significantly more difficulty identifying which emotion was conveyed than the typical children. These findings support previous reports that children with LI may have difficulty recognizing emotion conveyed by prosody.

Conclusion and Relevance to the Current Work

This study indicated that children with LI have 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. My thesis involves the implementation of intervention targeting emotion understanding and social competence in this population.

Gerber, S., Brice, A., Capone, N., Fujiki, M., & Timler, G. (2012). Children with social communication impairments: An evidence-based practice review. *Language, Speech, & Hearing Services in Schools, 43*, 235-249. doi: 10.1044/0161-1461(2011/10-0047)

Purpose of the Study

The purpose of this study was to present an evidence based systematic review (EBSR) of treatment for social communication disorders (11 areas of treatment were reviewed).

Method

Authors. The American Speech-Language-Hearing Association (ASHA) in collaboration with ASHA's National Center for Evidence-Based Practice in Communication Disorders convened an ad hoc committee on language use in social interactions in school-age children charged with developing an evidence-based systematic review of treatment for disorders of language use in social interaction. The committee was made up of the five professional speech and language pathology researchers associated with various colleges and universities. The focus of the review was on school-aged children with LI.

Procedures. The authors searched 22 electronic databases using key words related to social communication impairments or interventions to locate intervention studies. The studies included in the review were written in English and published in peer-reviewed journals between 1975 and June 2008. Eight studies were included in the EBSR.

Analysis and Results

Each of the eight accepted studies was evaluated for methodological rigor by two of the committee members. Points were awarded for each indicator if the following criteria were met: study protocol (described detailed enough to be replicated), blinding, random allocation, treatment fidelity clearly described, significance, practical significance including effective size and confidence limits reported, intention to treat (none of the included studies were efficacy studies so this analysis was not relevant). The EBSR revealed that only three of the original 11 clinical questions developed were addressed by these eight studies: effect of conversation/discourse, pragmatic, and narrative treatments on language use in social interactions. This review revealed that treatment goals and procedures to address language use in social interactions are highly variable and there was an absence of normative data for the pragmatic behaviors studied. The methodological quality of the eight studies ranged considerably in the area of adequate protocol homogeneous construct. There was a considerable range in specification of treatment goals and description of treatment procedures.

Conclusions

The authors conclude that the results from the EBSR provide preliminary support for the feasibility of various treatment procedures in changing selected social communication behaviors and pragmatic language skills. The committee was unable to make empirically supported recommendations for change in standard clinical practices based on this review. However, the results of the EBSR suggest that social communication and pragmatic language intervention have shown some gains in improving the social functioning of children with LI. The authors suggest that SLP's should continue to use the treatment procedures within their clinical practice that have supported positive treatment outcomes in the children they serve. The authors were surprised by the lack of empirical literature in the area of language use in social interaction and suggested more research is needed in examining the feasibility of interventions that focus on language use.

Relevance to the Current Work

This study demonstrated that there is a need for work investigating the efficacy of social communication interventions with children with LI.

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. doi:10.1044/1092-4388

Purpose of the Study

The purpose of this study was to examine the relationship between social status and linguistic competence for three groups of preschool children: children with speech and/or language impairments (S/LI), those with typical language development (ND), and those learning English as a second language (ESL).

Method

Participants. The participants in this study were 31 children (19 males and 12 females) who were enrolled in a preschool targeting language acquisition. Of these children, nine were in the typical group, ten were in the ESL group and twelve were in the group with S/LI.

Procedures. Following an orientation, the participants were presented with pictures of each of their classmates and asked to point to three pictures of classmates they liked to play with during classroom dramatic play activities (an activity the participants were familiar with from preschool). This process was repeated with children being asked to select children they did not enjoy playing with.

Analysis and Results

Group differences were statistically significant for positive nominations only. The children in the ND group received the most positive nominations. One child in the S/LI group received a positive nomination and eight of the 10 ESL children received an average number of positive nominations putting them in the average range of peer popularity (i.e., POSNOM Z-score between -1.00 and 1.00). Results indicated that positive nominations were moderately correlated with age, language skills, and articulation ability.

Conclusions

Because the children with limited language ability were associated with fewer positive nominations, the authors concluded that these results indicated a correlation between language ability and social acceptance. Children with typical language abilities were more “liked” and children with limited language proficiency tended to be “disliked” by their peers. Further analysis suggested that language ability was the strongest predictor of acceptance and a better predictor than age or IQ.

Relevance to the Current Work

Children with S/LI are less accepted by peers than their typically developing children. These results indicated a correlation between language functioning and social status but not a cause-and-effect relationship.

Harrist, A., Zaia, A., Bates, J., Dodge, K., & Pettit, G. (1997). Subtypes of social withdrawal in early childhood: Sociometric status and social-cognitive differences across four years. *Child Development, 68*, 278-294.

Purpose of the Study

Children with lower than average rates of social interaction with peers were observed to identify subtypes of withdrawal. Differences among subtypes in sociometric status and social information processing were assessed over a 4-year period.

Method

Participants. The sample consisted of 567 kindergarten children recruited from 3 different cities. Cohort I was comprised of 297 children (153 males and 144 females) who entered kindergarten in 1987. Cohort II was comprised of 270 children (142 males and 128 females) who began school in 1988. Participant's schools were chosen to represent a range of socioeconomic status. From this sample, 150 children were classified as socially withdrawn and followed over four years.

Procedures. Data were collected over the course of 4 years involving direct observation of children's free play, questionnaires completed by classroom teachers concerning the children's social behavior, and classroom sociometric interviews.

Analysis and Results

Children were classified as socially withdrawn based on systematic observations of their frequency of interaction with peers for 12 five-minute periods during free time on the playground or classroom on at least 6 different days. These interactions were scored and ranked withdrawn or nonwithdrawn. Solitary withdrawn play consisted of scores from: solitary focused play, and solitary unfocused play. Social behavior at school was determined by Teacher's Report Forms of the Achenbach Child Behavior Checklist (TRF). Sociometric assessments of the children were conducted each year by interviews and peer nomination measures. Social information processing was assessed during home visits where children were presented with hypothetical social dilemmas. Four main clusters were created using seven standardized teacher-rated behavior measures. Cluster 1 included relatively socially competent children, Cluster 2 included passive-anxious children, Cluster 3 included active-isolates, and Cluster 4 included sad/depressed children. Both kindergarten and subsequent year data demonstrated that the active isolate group was rejected more often than other groups and the unsociable group tended to be neglected more frequently than were passive-anxious, active isolates, and nonwithdrawn children as were the sad/depressed group. The passive-anxious cluster showed no signs of difficulty.

Conclusion

The authors conclude that their findings support the assertion that social withdrawal is a multidimensional construct. They suggest that unsociable and passive-anxious children experience few problems in contrast with other subtypes (active isolate and sad/depressed). They suggest that these withdrawal subtypes need to be differentiated in research involving sociability.

Relevance to the Current Work

This study suggests that withdrawal is a factor in social communication and must be looked at in terms of its subtypes for an accurate analysis. My current work will address withdrawal in its subtypes as observed by teachers in the TBRS. This study informs my research in the need to use the subtypes of withdrawal in our study rather than withdrawal as a whole.

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*, 647. doi:10.1044/1092-4388(2004/050)

Purpose of the Study

This study used the Teacher Behavior Rating Scale TBRS to examine correlations between withdrawn behaviors, sociable behaviors, and the severity of LI in school-aged children.

Method

Participants. This study included 82 children (41 children with SLI and 41 typically developing children gender and age-matched to the group of children with SLI). There were two groups in each set of 41 children consisting of a group between 6-9 years of age and a group between 10-13 years of age.

Procedure. The TBRS subtype scores for withdrawal and sociability were used to make comparisons between groups. The relationship between severity of language problems and level of observed social functioning were determined using specific analyses. The groups were separated into moderate and severe groups using the performance scores of the CELF-R in the areas of receptive, expressive and total language.

Analysis and Results

The TBRS scores indicated that the group with SLI demonstrated significant higher levels of Reticence and Solitary-Passive withdrawal than their peers. There was no difference between the groups in Solitary-Passive withdrawal behavior. Additional inferential analyses indicated that children with SLI who exhibited more severe levels of language deficit were less sociable than the children with SLI who exhibited moderate language deficits. The level of language deficit did not influence Reticence in children with SLI.

Conclusions

The severity of LI appeared to be most closely related to prosocial behavior. Children with severe receptive scores showed poorer likeability than children with moderate scores and no differences were observed with regard to expressive scores. The severity of LI was not closely associated with withdrawal in general.

Relevance to the Current Work

This study provides more supporting evidence that children with SLI have difficulty with social competence and are perceived as being more reticent than their typically developing peers. The TBRIS was used to make these assessments as is the case in my current study.

Hart, C., Nelson, D., Robinson, C., Olsen, S., & McNeilly-Choque, M. (1998). Overt and relational aggression in Russian nursery-school-age children: Parenting style and marital linkages. *Developmental Psychology, 34*, 687-697.

Purpose of the Study

This study examined relationships between childhood aggressive subtypes (relational and overt) and parenting styles and marital interactions in an ethnic Russian sample.

Method

Participants. Parents of 207 from 15 classrooms in three nursery schools participated (207 mothers and 167 fathers). On the basis of questionnaire responses, parents represented a generally well-educated sample. The sample was comprised of 101 boys and 106 girls, with ages ranging from 3;7 to 6:7.

Procedures. A parent questionnaire assessing parenting styles was completed by each parent. Marital interactions were also rated by each parent. Relational and overt aggression items used in the study were derived from teacher measures representing overt aggression (threatens or intimidates other children just to be mean; enjoys picking on others, hits, kicks, and pushes to get something he or she wants) and relational aggression (tells a peer that he or she won't play with the if he or she doesn't do what is asked; tells other children not to play with or be a peer's friend).

Analysis and Results

Correlations between aggression scales, parenting style and marital interaction scores were analyzed. Analysis of the teacher measures were also analyzed for sex differences. Results indicate that less paternal responsiveness and more maternal coercion were related to overt and relational aggression in the context of other parenting style and marital hostility variables. Likewise, the significant marital conflict by gender interaction persisted in the context of parenting styles and marital hostility, making significant, independent contributions to both overt and relational aggression.

Conclusions

Russian mothers and fathers who reported using more coercive parenting styles had sons and daughters who were rated by teachers as being more overtly aggressive with peers. More responsiveness on the part of both mothers and fathers was linked to less overt aggression for boys. However, only father's responsiveness was associated with less overt aggression for girls. Maternal, not paternal, psychological control was significantly associated with teacher ratings of overt aggression for boys and girls.

In general, the authors conclude that their results support the idea that the absence of positive parenting is as important in the development of childhood behavior problems directed toward peers as the presence of negative parenting. In terms of the development of aggression, the lack of Russian paternal responsiveness and more maternal coercion are significant contributors to overt and relational aggression.

Relevance to the Current Work

This study used the TBRS to study overt and relational aggressive behavior in children. My work uses the TBRS to study withdrawal in children with LI.

Holder, H. B., & Kirkpatrick, S. W. (1991). Interpretation of emotion from facial expressions in children with and without learning disabilities. *Journal of Learning Disabilities, 24*, 170-177.

Purpose of the Study

These authors investigated the accuracy and the time required for children with and without learning disabilities to interpret emotion from photographs of facial expressions which included *fear, sadness, surprise, anger, happiness, and disgust*.

Method

Participants. A total of 96 children participated in this study. Forty-eight children (12 boys aged 8-10; 12 boys aged 11-15; 12 girls aged 8-10; 12 girls aged 11-15) were formally identified by their school districts as having specific learning disabilities with no other exceptionality in learning. Forty-six typically developing children (TD) (12 boys aged 8-10; 12 boys aged 11-15; 12 girls aged 8-10; 12 girls aged 11-15) were randomly selected from the population of children without LD from three mainstream schools.

Procedures. Scenarios expressing emotions were read and labels were introduced by experimenters to each child. The child was asked to select the facial expression more appropriate to the scenario from a pair of expressions. Scenarios expressing each of the six specific emotions with matched facial expressions were used. In the testing session, each slide was individually presented for 10 seconds and labeling responses were recorded. The children were asked to select only one response, but all responses were recorded. The accuracy and response times for each of the six emotions were recorded.

Analysis and Results

The results of this study indicated that *happiness* was the most correctly identified by both groups followed by *anger, surprise, and sadness*; less correctly labeled were *fear* and *disgust*. Response times indicated that all groups required less time to interpret *happiness* than any other emotion. The response times for the total group on disgust and anger were similar. The longest response time for the total group was for interpretation of fear, indicating the overall difficulty in recognizing this emotion from facial expression stimuli. No significant differences were found in age or gender categories. Surprise and disgust were most frequently confused with each other and the children with LD had more difficulty in differentiating them.

Conclusions

This study suggests that children with LD are less proficient at interpreting emotions from facial expressions than are children without learning disabilities and more particularly in the interpretation of the later-developing emotions of *surprise* and *disgust*.

Relevance to the Current Work

This study provided supporting data to the conclusion that children with language disabilities have difficulty with emotion recognition. My thesis involves social communication intervention for children with LI involving emotion recognition using scenarios as well as photographs depicting the six emotions used in this study to increase sociability as ranked by teachers.

Horowitz, L., Jansson, L., Ljungberg, T., & Hedenbro, M. (2005). Behavioural patterns of conflict resolution strategies in preschool boys with language impairment in comparison with boys with typical language development. *International Journal of Language and Communication Disorders, 40*, 431-454. doi: 10.1080/13682820500071484

Purpose of the Study

These authors described behavioral sequences in conflicts between boys with LI and children with typically developing language (TL). The conflict resolution strategy of reconciliation was the focus of the study. The authors hypothesized that boys with LI would experience difficulty in effective reconciliation.

Method

Participants. Participants included 31 males (aged 4-7) attending a preschool in the Swedish city region. Eleven of the boys were LI and attending a preschool designed for children with LI. The twenty TL participants passed a screening without any detectable language difficulties or related social problems.

Procedures. The group with LI and the TL group were video recorded independently from each other during free play. Naturally occurring conflicts that occurred spontaneously were identified within the video films of free play. Observations were done from November 1993 to June 2002 consisting of 175 hours of videotape of the TL group and 100 hours for the LI group.

Analysis and Results

The recorded conflicts were analyzed in detail and reconciliation rates were calculated by dividing the number of conflicts an individual attained reconciliation by the number of conflicts the individual participated as an opponent. The results indicated that the group with LI resolved conflicts with reconciliation at a lower rate than did the TL group. However, the group with LI's reconciliatory behaviors was as likely as the TL group's to be accepted by a conflict opponent. Boys in the group with LI reconciled a smaller share of conflicts through exclusively verbal reconciliatory behaviors, without non-verbal behavioral compensation. Also, in a larger proportion of the conflicts involving boys with LI, the individuals did not exhibit accepted reconciliatory behavior.

Conclusions

The authors suggest that the LI boys' social strategies may lack a reciprocal quality in comparison with TL boys. In addition, the boys with LI were less likely to attempt reconciliation, but when they did so, reconciliation was as likely to be achieved as was an exchange between TL boys. This indicates that boys with LI have difficulties resolving conflicts from which reconciliation may be initiated rather than difficulties with functionally performing reconciliatory behaviors. Complications in establishing and maintaining reciprocal interaction was repeatedly observed in conjunction with the lower reconciliation rates of the boys with LI.

Relevance to the Current Work

This research gives more data to back up the premise that children with LI have difficulty with social communication and suggests that support in establishing peer contact would be helpful. My thesis work addresses the efficacy of a social communication intervention for children with LI targeting emotion understanding as observed by teacher report of sociability. This intervention would be helpful in supporting children with LI in all social contexts.

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

Purpose of the Study

These authors compared the ability of children with specific language impairment (SLI) to their typically developing (TD) peers in accessing interactions by comparing the success, style and duration of attempts.

Method

Participants. Participants in this study included 69 first and second graders grouped into 23 triads consisting of one target child and two unfamiliar grade- and gender-matched play partners. Targets included ten children (three girls and seven boys) with SLI and thirteen (six girls and seven boys) typically developing children (TD). The criteria for participants with SLI

included: a diagnosis of LI based on at least a 1 *SD* below the mean on a standardized language assessment, currently enrolled in speech and language services, and nonverbal IQ above 80.

Procedures. The TD play partners were brought into a room with toys on the carpet and invited to play with the toys on their own. After 10 minutes, the examiner brought the target child into the room and introduced him/her to the children. The examiner went to a separate area of the room and resumed working and provided only minimal response when approached with questions or assistance.

Analysis and Results

The number of utterances produced by each participant was calculated and coded. When each target child achieved access to the ongoing interaction was recorded as well as how long it took for access to be granted. After access was granted, the target children's behavior was coded every 5 seconds as group play, individual play, or onlooking behavior. All but one of the TD children successfully accessed the conversation by making an initiation towards the play partners. Nine out of 13 TD children accessed the interaction in less than one minute with only one child requiring more than three minutes. Six of the 10 children with SLI achieved access by responding to initiation request made by the TD play partners. Four of the children with SLI never received access initiation. Out of the six who did achieve access initiation, two children required more than three minutes to access. Children with SLI who performed poorly on expressive language assessments were unable to achieve access as quickly as the children with SLI who performed better on the same assessment. After gaining access, children with SLI produced fewer utterances and were addressed less often than their TD peers.

Conclusions

The authors suggest that children with SLI tended to wait for an invitation to play from their peers instead of attempting to initiate access on their own. Expressive language ability was the most predictive factor for successful conversational access. Children with SLI were more socially reticent than their typically developing peers even after achieving access and often remained outside the interaction.

Relevance to the Current Work

This study demonstrates the difficulty of children with SLI to access and participate in ongoing interactions. My thesis involves children with LI receiving intervention that targets emotion understanding in social communication to improve interactional skills.

Nelson, J. R., Hart, C. H., & Evans, C. A. (2008). Solitary-functional play and solitary-pretend play: Another look at the construct of solitary-active behavior using playground observations. *Social Development*, 17, 812-831.

Purpose of the Study

The purpose of the study was to explore how solitary-pretend play and solitary-functional play (sensorimotor) are related to one another and if they should be combined to make up Solitary-Active withdrawal.

Method

Participants. Participants included 357 children (189 boys, 168 girls) from two early childhood programs. The average age of the children was 59.63 months ($SD = 5.35$) with most children being four at the beginning of the school year. At least 70 percent of the children in the class participated. Children in the Head Start program represented a lower SES population and the children in the university preschool program represented a middle-class population. Both groups were observed in a playground setting.

Procedures. Behavioral observations were conducted on the playground using 5-second scans with a maximum of 10 scans per day over a 6-8 week period, until a total of 100 scans (nearly 9 minutes) had been completed for each child. Observers were trained graduate and undergraduate university students with a minimum of 85 percent interpreter reliability. Teacher assessment was also conducted using the teacher behavior rating scale (TBRS). Peer sociometric rating measures were conducted by asking the children to use a peer rating system to determine who they liked and didn't like to play with (sociability).

Analysis and Results

The findings supported the authors' hypotheses that (a) solitary-functional and solitary-pretend play were not related, (b) solitary-functional play was positively associated with ratings of Solitary-Passive and reticent behavior, while solitary-pretend play was only minimally related to observed Solitary-Passive behavior, (c) solitary-functional play for both genders was negatively associated with social play, co-operative rough and tumble lay, being sociable/friendly assertiveness, and peer acceptance, and (d) solitary-pretend play was positively associated with distractibility, venting, reactive physical aggression, bullying and instrumental aggression, active exclusion, and victimization as well as negatively associated with peer acceptance. Few findings differed by gender.

Conclusions

The authors' conclude that their study provides evidence that solitary-functional and solitary-pretend play enacted on the playground should not be combined to form Solitary-Active withdrawal. They also conclude that context is critical in examining causes and correlates of withdrawn behaviors (natural playground play more effective than in class interaction). The construct of Solitary-Active behavior should possibly be changed in future research to separate solitary-functional and solitary-pretend play to more clearly understand how each form of play is associated with maladjustment and adjustment in early childhood.

Relevance to the Current Work

This study focuses on subtypes of Solitary-Active withdrawal. I address these issues in the current study. This study looked at the aspect of Solitary-Active withdrawal and its components using in part, the TBRS to measure behavior. In the current work we will use the TBRS as well.

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, MD: Brookes Publishing Co.

Purpose of the Work

This chapter examines social competence for young children and relating factors that affect its development and expression. Social competence is defined and conceptualized. Means of assessing social competence as well as factors that influence its development are outlined.

Summary

Social competence in young children is defined as the child's ability to use contextually appropriate social behavior to achieve specific social goals. Social competence for young children is important due to longitudinal outcomes which span from elementary school to adulthood. Assessments have been developed using specific methods to measure social actions, skills, and abilities of children. There are various methods of assessing children's social ability which include observation, teacher and parent ratings of child behavior, social problem solving measures, sociometric assessment, and friendship measures. For the best assessment, information should be combined across methods and social agents in the child's environment.

There are two processes which are associated with competence: processes that operate "inside" a momentary task, and processes which are "outside" a particular task. There are features or characteristics of a child that are associated with social competence with peers which are characterized as "inside-out influences" and include neurology and brain development, temperament, self-regulation, emotional competence, gender differences, cognitive skills, communication and language skills, and disability. Influences which are external are also associated with social development and are categorized as "outside-in factors" which include family influences, classroom and teacher influences, early intervention, peer-group influences, friendships, and culture. The relationship between these variables is complex and is integrated in a reciprocal relationship to influence the development of social competence.

Conclusions

The complexity of variables in young children makes it a challenge to measure their social competence but is important to inform our therapy interventions. We can observe the ways children show their social competence in peer interaction. Some children who have social competence problems may display them in different ways such as physical or relational aggression, social withdrawal, and isolation.

Relevance to the Current Work

Children with LI display deficits in social competence which affect social relationships and can continue into adulthood. Our research will look at how to assess and develop better intervention for developing social competence.

Olswang, L., Coggins, T., & Timler, G. (2001). Outcome measures for school-age children with social communication problems. *Topics in Language Disorders*, 21, 50-73.

Purpose of the Work

This article addresses outcome measures for social communication problems exhibited by school-age children. General guidelines for selecting outcome measures are provided. Specific outcome measures are discussed relative to a model for viewing abilities necessary for social communication, and a framework for sampling these abilities across four different contexts is presented. The authors provide a descriptive summary of four assessment tasks and discuss how a variety of outcome measures can be used with each task. The authors identify advantages and limitations associated with each task. Finally, they show how the application of quantitative and qualitative data can be used with the tasks and the outcome measures.

Summary

The authors arrange tasks with varying contextual and processing demands along a real time continuum which can be used to measure outcome related to social communication examining children's knowledge of people, relationships, and events from a different perspective. Clinicians need to decide what information is desired and how often data should be collected. The reviewed tasks provide excellent opportunities to examine performance from both quantitative and qualitative perspectives, and both types of data are needed for the optimum understanding of social communication. For example, hypothetical and narrative tasks can be used more frequently due to their ease of delivery and scoring. Analog and direct observation tasks are more time consuming and may be administered less frequently. The most success will be gained from a variety of tasks administered repeatedly and periodically during intervention.

Speech-language pathologists have become adept at identifying children with LI and children who exhibit social problems as revealed during verbal interaction with peers. Language skills may be adequate for many demands of the preschool years; however, as demands at school become higher, many children with LI seem unable to use language in interpersonally appropriate ways. Clinicians need to monitor communication needs as part of the intervention process (including recognizing the complexity of communication and how it varies in real world social situations).

Relevance to the Current Work

This research addresses narratives as a behavioral measure on a real-time, demand continuum as well as data collection. Our current work will be using the behavioral measure of narratives and data collection. This article will inform our study by providing the benefits and limitations of this behavioral measure. The authors create a definition of social communication which we will use to define social communication for our current work.

Redmond, S., & Rice, M. (1998). The socioemotional behaviors of children with SLI: Social adaptation or social deviance? *Journal of Speech, Language, and Hearing Research, 41*, 688-700.

Purpose of the Study

Redmond and Rice compared the socioemotional behavior and verbal abilities of children with SLI to typically developing peers using teacher and parent observations. Their goal was to evaluate which of two models (social adaptation or social deviance) best characterized children with SLI.

Method

Participants. Thirty-seven children were recruited to participate in this longitudinal study. Seventeen children (6 females, 11 males; *M* age: 71.57 months old) were identified as having SLI. Twenty typically developing children (10 females, 10 males; *M* age: 72 months old) were age-matched with the participants with SLI to form the control group.

Procedures. To assess the participant's socioemotional status including frequency and severity of behavioral problems, The Child Behavior Checklist (CBCL; Achenbach, 1991) and the Teacher Report Form (TRF; Achenbach, 1991) were administered to the teachers and parents of each child.

Analysis and Results

Children were assessed in first and second grades. As a group, the children with SLI scored within normal limits on all syndrome scales on both the teacher and parent profiles. This profile indicated that the children with SLI were more like their normally developing peers than the samples used to standardize the rating scale. Children with SLI performed significantly lower than typical children on several skills, however. Teachers and not parents rated the children with SLI as having more behavioral problems than their peers. Parents of the children with SLI saw their children as generally well behaved and socially appropriate contradicting most teacher reports.

Conclusions

The authors suggest that results were more supportive of a social adaptation model than a social deviance model.

Relevance to the Current Work

My thesis examines the efficacy of a social communication intervention targeting emotion understanding on improving the sociability of five children with LI. A teacher rating scale will be used with the hope of improved social functioning as observed by the teachers.

Rubin, K. (1982). Nonsocial play in preschoolers: Necessarily evil? *Child Development, 53*, 651-657. doi:10.1111/1467-8624.ep8588517

Purpose of the Study

The purpose of this study was to examine social, cognitive, and social-cognitive correlates of nonsocial play and to identify those forms of nonsocial play in 4-year-olds which correlate either positively or negatively with assessments of competence in social, social-cognitive, and cognitive domains.

Method

Participants. One hundred twenty-two children (53 male and 69 female) were recruited to participate in this study. The children were four years of age ($M = 58.11$ months, $SD = 4.37$ months) and attended preschools or day-care centers in a southwestern Ontario community.

Procedures. Each participant was observed for a total of thirty minutes during free play. Behaviors were coded on a checklist which included cognitive play categories (functional-sensorimotor, constructive, dramatic play, games with rules), and social participation categories (solitary, parallel, group activities). Other observational categories included unoccupied behavior, onlooker behavior, reading or being read to, rough-and-tumble play, exploration, active conversations with teachers or peers, and transitional activities.

Analysis and Results

Solitary-functional play (the least mature form of play) was found to have a negative correlate with mental age as well as the number of social overtures received from other children, the proportion of positive interactions to the total number of social interaction, the number of peer conversations, the sociometric rating, and the index of construction complexity computed during the “play phase” of the impersonal problem-solving paradigm. Solitary-constructive play was negatively correlated with the number of social overtures received and the number of peer conversations held during free play. Parallel-functional play was found to correlate positively with the frequency of transitional behaviors, the proportion of negative interactions to the total number of social interaction, and the measure of play construction complexity. Parallel-constructive behavior is promoted by teachers in the class room and is the most frequently occurring activity observed in preschool settings. Positive correlations were found for sociometric ratings, the number of relevant alternatives produced on a social problem-solving task, and the measure of play construction complexity.

Conclusions

The author concludes that the data support the contention that qualitative rather than quantitative measures of nonsocial activity be examined when children are targeted as “at risk” for developmental problems. Some nonsocial activities (solitary-functional, solitary-dramatic, and parallel-functional play) do correlate negatively with the indices of social, social-cognitive, and cognitive skill. Other forms of nonsocial activity (solitary-constructive, onlooker behaviors) are benign. Parallel-constructive play is highly predictive of competence. The author suggests that the data clearly indicated that not all nonsocial activity is associated with negative developmental prognosis.

Relevance to the Current Work

This study provided more data on the negative and positive effects of reticent and sociable behaviors in children. My thesis involves using the nonstandardized measure, *The Teacher Behavior Rating Scale*, to measure reticent behaviors in children with LI.

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, 173-188.
doi:10.1080/13682820500224091

Purpose of the Study

These authors extended the work of Ford and Milosky (2003) by examining the ability of elementary school age children with LI to accurately infer emotions in social situations.

Method

Participants. In this study, 86 school-aged children participated, divided into groups of children with LI and their typical peers. Each of these groups was divided into two age groups. The younger group included 11 boys ($M = 7;6$) and 10 girls ($M = 6;6$); the older group included 12 boys ($M = 10;9$) and 10 girls ($M = 10;4$).

Procedures. Each participant was presented a series of 16 stories (4 stories per emotion) in which the main character, Chris, was involved in a series of scenarios designed to elicit the emotions of *happiness*, *sadness*, *angry*, or *fear*. The task was designed to identify the emotion which Chris would most likely experience.

Analysis and Results

Groups were compared using a four-way, mixed model ANOVA. The emotion variable was a within-subject factor and the language group (LI and typical), gender, and age variables were between-subject factors. Accurate identification of emotion was the dependent variable.

Both groups were most accurate in identifying *happiness*, followed by *sadness*, *fear*, and *anger*. Few valence errors occurred in either group. *Fear* and *anger* were more often confused in younger children than older children. Children with LI exhibited more errors in emotion identification in each scenario.

Conclusions

The results of this study replicated results found by Ford and Milosky (2003). Elementary school age children with LI had more difficulty inferring the emotions that would be experienced given a relatively common scenario than typical peers.

Relevance to the Current Work

This study indicates that children with LI have deficits in emotion understanding. The authors suggest that therapy for social communication should target emotion understanding as a key element of intervention. My thesis targets this key element of 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, 131-143.
doi:10.1177/15257401050260030201

Purpose of the Study

Spackman et al. examined emotion understanding in children with LI. Two studies were done using emotion recognition tasks which were selected to minimize reliance on language skills. One study examined face recognition of emotion and the second study examined recognition of emotion in classical music.

Method

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

Procedure. In Study 1, the participants were shown photographs of faces expressing various emotions and asked to identify the emotion expressed. Faces pictured happiness, sadness, anger, fear, surprise and disgust. In Study 2, participants listened to excerpts of classical music depicting specific emotions. Each participant was asked to indicate which emotion the music sounded like. The emotion of disgust was not tested in this study.

Analysis and Results

In study 1, accuracy of identification was compared across age, gender, and group (LI, typical). Patterns of confusion among the six emotions was tracked to determine which emotions were confused with each other and if this differed across the three variables of interest.

Happiness was most accurately identified, followed by *anger*, *sadness*, and *fear* in both groups. Groups with LI did significantly worse than the typically developing groups with *disgust* and *surprise*. Some patterns of confusion included mixing *fear* and *surprise* or misidentifying *fear* for *disgust* and *disgust* for *anger*.

In study 2, a consensus scoring system was used to determine whether participants' agreement with the comparison group differed across emotions, age groups, and gender. Confusion among the four emotions was also evaluated. There was higher agreement in typically developing groups than with children in the group with LI; older groups had more agreement than younger groups. Musical excerpts rated as *happy* had the highest agreement while *anger*, *fear*, and *sadness* were rated lower. *Anger* and *fear* were frequently confused in

both groups. Children with LI exhibited more difficulty identifying *anger*, often misidentifying it as *fear*.

Conclusions

The authors' conclude that children with LI recognize expressions of emotion differently than do typically developing children. These differences are due to many possibly inter-related factors. They suggest that language and emotion understanding must be viewed as dependent on one another and contributing to each other.

Relevance to the Current Work

This study provides further evidence that children with LI have difficulty with identifying emotion as compared with their typically developing peers. The results have implications for clinical interventions for children with LI. The current work will study clinical intervention for social communication in children with LI.

Timler, G. R. (2008). Social knowledge in children with language impairments: Examination of strategies, predicted consequences, and goals in peer conflict situations. [Research Support, Non-U.S. Gov't]. *Clinical Linguistics and Phonetics*, 22, 741-763. doi: 10.1080/02699200802212470

Purpose of the Study

Timler examined the ability of school-age children with LI and their typically developing peers to suggest conflict resolution strategies in hypothetical scenarios.

Method

Participants. Twenty-four children (aged 8;1 – 12;2) participated in this study. All children attended mainstream education classroom settings in elementary school and demonstrated no cognitive, behavioral, attentional, or hearing deficits. Twelve children (seven male and five female, aged 8;4-12;2) were recruited to the group with LI. The other 12 students had typically developing (TD) language skills in addition to typical cognitive, behavioral, attentional, and hearing abilities.

Procedures. The examiner presented the children with 12 hypothetical peer conflict vignettes. The participants were asked open-ended questions ('wh' questions) and force choice response questions (multiple choice questions). The parent form of the SSRS was completed by the mothers of each participant to assess frequency of specific social skills and problem behaviors. The teacher form of the SSRS was completed by the participants' teachers to identify the presence and severity of social difficulties in school settings.

Analysis and Results

Results of the hypothetical peer conflict task indicated that children with LI used fewer conflict resolution strategies than did their typical peers although the total number of strategies produced by children in both groups was the same. Six out of the 12 participants with LI

selected at least one hostile strategy in the multiple choice task while none of the TD children selected any hostile strategies. Teachers reported that children with LI had lower social skills and more problem behaviors while parental perception of social skills and problems behaviors resulted in no differences between groups.

Conclusions

The author concluded that children with LI selected prosocial strategies to resolve conflicts with their peers less often than did typically developing children. The fact that teacher and parent ratings of social skills and problem behaviors were not significantly associated were similar to results from previous studies.

Relevance to the Current Work

The findings from this study support the argument that social communication intervention is needed for children with LI. My thesis involves children with LI who demonstrate social communication difficulties. The intervention targets emotion understanding.

Trauner, D., Ballantyne, A., Chase, C., & Tallal, P. (1993). Comprehension and expression of affect in language-impaired children. *Journal of Psycholinguistic Research*, 22, 445-452. doi:10.1007/BF01074346

Purpose of the Study

The purpose of this study was to examine the ability of children with LI to comprehend and express the emotional intent verbally and nonverbally in spoken language and through facial expression. In order to determine if difficulty might be modality related, testing was done both auditorily and visually.

Method

Participants. Sixteen children participated in this study. Eight children with LI (five boys and three girls) aged 8.67 to 12.42 years were included in one group. Eight children with typical language, matched on the basis of gender and chronological age, made up the typically developing group.

Procedures. The ability of each participant to comprehend and express emotion was tested. Assessment of comprehension in the visual modality involved the presentation of three photographs of a person expressing three emotions (happy, sad, and angry). Participants were asked to identify the emotions pictured. Assessment of comprehension in the auditory modality consisted of identifying emotion from prerecorded clips of an actress expressing the three different emotions (happy, sad or angry) using prosody. To assess expression of emotion visually, the participants were shown the same three pictures used in the comprehension test and asked to make the same facial expressions. For expression of emotion auditorily, pre-recorded phrases similar to those used in comprehension testing were used and 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 expressions. (Example: "Show me with your face, without talking, how you would show that you

were happy because your mother said she was taking you to Disneyland for the day.”) To assess spontaneous auditory expression of emotion, participants completed a series of ten short stories designed to elicit emotion and then instructed to act out the responses with their voices.

Analysis and Results

The photographs on the visual comprehension task were correctly identified. The group with LI demonstrated significant impairment compared to the control group on the auditory comprehension task. No significant difference was found between groups on the visual tests of expression and the auditory expression task. In the spontaneous expression tasks, both groups performed well in the visual modality.

Conclusions

The authors conclude that the study demonstrated affective deficits in children with LI which appear to be modality-specific. Children with LI had difficulty with comprehension and spontaneous expression of affect intent in auditory, but not the visual modality.

Relevance to the Current Work

This study suggests that children with LI have an impairment in their ability to perceive and express emotion. My thesis involves explicit instruction of emotion.

Wadman, R., Durkin, K., & Conti-Ramsden, G. (2008). Self-esteem, shyness, and sociability in adolescents with specific language impairment (SLI). *Journal of Speech, Language, and Hearing Research, 51*, 938-952.

Purpose of the Study

The purpose of this study was to determine if lower global self-esteem, shyness, and low sociability are associated LI in adolescents with SLI.

Method

Participants. One-hundred and eight adolescents (aged 16 and 17 years) were recruited for this study. Fifty-four adolescents (38 males and 16 females) were diagnosed with SLI (initial diagnosis at age 7). Fifty-four adolescents with typical language ability (TL) were also studied.

Procedures. Each participant was individually assessed in one session. All items on the assessment measures were read aloud and additional clarification was given where needed. The assessments included: the *Rosenberg Self-Esteem Scale* (RSES; Rosenberg, 1965) measuring feelings of global self-esteem in adolescents, the *12-item Revised Cheek and Buss Shyness Scale* (RCBS; Stritzke, Nguyen, & Durkin, 2004) measuring shyness, and the *Cheek and Buss Sociability Scale* (Cheek & Buss, 1981) measuring preference for being with others rather than being alone.

Analysis and Results

The group with SLI had a significantly lower mean global self-esteem score than the TL group. Although the typical adolescents had significantly higher scores, both groups produced above average scores in self-esteem. Overall, adolescents with SLI may be at risk for experiencing lower global self-esteem compared with their peers but not below average self-esteem. There was a significant but modest gender difference in self-esteem with males having higher global self-esteem than females. The adolescents with SLI had significantly higher shyness scores than the adolescents with TL. Measures revealed that shyness, but not core language ability, was concurrently predictive of global self-esteem. There was no significant difference between the sociability scores of the group with SLI and the TL group.

Conclusions

The authors suggest that adolescents with SLI present with social limitations, higher-than-average levels of shyness, and lower-than typical levels of global self-esteem (confirmed by parental, teacher, and self-report measures). Clinicians should consider strategies that may address these issues. The authors note that their findings suggest that any difficulties in the social domain should be seen as reflecting responses to language-related challenges, rather than underlying psychosocial deficit. Clinical approaches designed to support assertiveness and ameliorate social anxieties may be more helpful for adolescents with SLI than generalized social skills training.

Relevance to the Current Work

This study suggests that the social limitations which are evident in children with SLI continue to be an issue into adolescence.

Wells, B., & Peppe, S. (2003). Intonation abilities of children with speech and language impairments. *Journal of Speech, Language, and Hearing Research*, 46, 5-20

Purpose of the Study

The purpose of this study is to examine how the intonation performance of children with SLI compares with the performance of normally developing controls of similar chronological age and similar ability in terms of language comprehension ability. In addition, the study will examine how the intonation performance of children with SLI is related to performance on segmental phonology, language comprehension and expression, and nonverbal intelligence.

Method

Participants. Eighteen children with LI (aged 8;0 to 8;11) were studied. Forty-five chronically age matched control children with no reported history of speech, language, hearing, or general learning problems were also examined. It was necessary for the purposes of this study to identify separate control children for the four focus subtests.

Procedures. All children were tested on measures including grammatical comprehension and expressive language for comparison with intonation performance. All were give an IQ

assessment, and tests of segmental phonological abilities. Individual interviews with each participant were carried out for 30 minutes sessions with three sessions per child. The child's knowledge of the vocabulary to be used in the assessment was evaluated before administration of the PEPS-C battery. The PEPS-C input tasks are each comprised of 16 items and the child has only two choices for each item—the response is either right or wrong. The output tasks each have 12 items and scored right, wrong, or ambiguous. Stimuli for the input tasks were prerecorded on digital audiotape and presented to each participant. Responses were also recorded.

Analysis and Results

The performance of the 18 children with LI was compared to a chronological age (CA) matched group of 28 children and a group of 18 children matched for language comprehension (LC). The performance of the group with LI was compared to the LC controls and the CA controls on each PEPSI-C subtest. The group with LI did not score significantly worse than the LC controls on any PEPS-C task. The results offer little support for the hypothesis that intonation deficits underlie language difficulties. There were lower mean scores for the group with LI than the LC group though not significantly so. On 11 of the 16 PEPS-C subtests, the group with LI did not perform significantly worse than the chronically age controls (CA). Significant differences were found between the group with LI and CA group on the remaining five subtests. The results suggest that children with LI may have difficulties in retaining information over the longer prosodic domains where phrasal boundaries such as chunking and phrasal accents are manifested. There was no significant correlation between intonation performance of children with SLI and their own language comprehension, language performance, and their own performance on nonverbal IQ tests.

Conclusions

The authors conclude that due to the heterogeneity of the group with LI in this study, it is difficult to come to firm conclusions about the relationship between these intonational factors and other levels of language or speech impairment. The study also suggests that intonation difficulties may be present in children with LI who present with a range of different speech and language profiles, including children with and without accompanying speech output difficulties and pragmatic problems.

Relevance to the Current Work

This study indicates that intonation difficulties may be present in children with LI who present with a range of different speech and language profiles. Children with LI have been shown to have difficulty with various aspects of emotional competence, including interpreting emotion conveyed by intonation and prosody.

Appendix B

Clinical Evaluation of Language Fundamentals-5 (CELF-5)

Clinical Evaluation of Language Fundamentals-5 (CELF-5)

Participant		CELF-5 ¹ Percentile Rank Scores				
	Age	Sentence Comp ²	Word Structure	Formulated Sentences	Recalling Sentences	Core
J.S.	5:11	25	9	9	2	7
M.K.	6;7	1	1	1	2	14
Ad.K.	7:11	25	16	50	25	23
	Age	Word Classes	Semantic Relationships	Formulated Sentences	Recalling Sentences	Core
S.S.	9;6	16	2	1	2	2
Al.K.	10;1	16	5			8

Note: ¹Clinical Evaluation of Language Fundamentals-5 (CELF-5). ²Sentence Comprehension.

Appendix C

Sample Story Book and Script

Llama Llama Red Pajama

by Anna Dewdney

Concepts to stress

1. Emotions experienced
2. Anticipating an event and the emotions it elicits
3. Fear—anticipated—not justified (Llama and the mama)
4. Introduce notion of guilt
5. Tantrum behavior
6. Mixed emotions—mad, sad, scared
7. Surprise—bad surprise?
8. Prosocial behavior: trusting someone—thinking about what someone else is doing or needs to
9. Structural: complete simple sentence forms, complex sentences with causal connections (but, if, so, because)

Title Page

Look at picture on cover

I wonder what this book is about?

What do you think? (Let child look at cover.)

Now let's look at it together.

Page 1-2

Read (feel free to read the words in the book or to tell what is happening according to what engages the child more)

Here is a little llama and his mama lama

Do you know what a llama is? (explain)

They are reading a book before bed?

Do you ever do this with your mom or dad?

How does Little Llama and Mama Llama feel?

They are happy because they like reading together.

Page 3-4

Read

What is Mama Llama going to do?

How does Little Llama feel about that?

Page 5-6

Read

How does Little Llama feel?

Look at his face. He looks a little worried.

What is Mama doing? She is busy, isn't she?

Page 7-8

Read

What Little Llama doing? What does he want?

Do you think he needs a drink? Maybe. Do you think he might want something else? He feels lonely, so he might want his mama.

Mama says she'll come soon.

Little Llama is waiting.

Page 9-10

Read

Little Llama is waiting.

Little Llama starts to fuss a little.

Llama is sad because Mama did not come to his room right away.

But Mama is busy downstairs, isn't she?

What do you think Little Llama will do next?

Page 11-12

Read

What does “whimper” mean? It means to cry a little (demonstrate)

Mama needs to answer the phone.

Then Little Llama starts to moan and whine.

Little Llama is whining because he wants his mama?

Have you ever done this? (or your sibling, etc.)

Page 13-14

Read

Little Llama is waiting for Mama.

How does he feel?

He looks a little worried or scared because Mama has not come.

But what is Mama doing (talking on the phone and washing dishes)

Little Llama starts to cry because Mama has not come.

I think that Little Llama really wants his own way here.

(You can introduce the notion of Little Llama’s not thinking that Mama might be busy if you think the child would get it.)

Page 15-16

Read

Whoa. Look what Little Llama is doing now?

Llama is yelling for Mama. Little Llama is very mad because Mama has not come.

Little Llama is mad because he did not get his own way. He is mad because he did not get what he wanted.

He is crying and stomping and fussing.

Do you know what a tantrum is? (explain) Little Llama is having a tantrum.

How do you think Mama Llama will feel about that?

Page 17-18

Read

Now how does Llama feel?

Why does Little Llama feel scared?

If Llama thinks Mama is gone, then Llama would feel scared.

Do you think Mama is gone? What do you think she is doing?

Page 19-20

Read

I think Llama is having a tantrum because his mama has not come.

Llama feels mad and sad and scared all at the same time!

Page 21-22

Read

Look at Mama.

What does she think?

Mama is surprised, not a good surprise—a shock!

She is and scared and worried.

What does she think might have happened? (Llama is hurt)

Mama is scared and worried because she thinks Little Llama is hurt. (Is Llama really hurt?)

What does she do? (Drop the phone, run upstairs)

Page 23-24

Read

What does Mama find when she gets upstairs (Little Llama is fine but he made a huge fuss)

Oh, look at Mama's face. How does she feel?

Mama is mad because Little Llama made a big fuss (tantrum) when he was not hurt at all.

Mama wanted Little Llama to be more patient. (define patient)

How does little Llama feel?

Little Llama feels guilty because he knows he made a huge fuss for nothing.

(define guilt—when you know you have done something that is not good and you feel bad about it)

Little Llama feels sorry that he screamed and had a tantrum.

Page 25-26

Read

Mama tells Little Llama that she loves him.

Mama tells Little Llama that she is close by, even if she is not in his room.

How does Little Llama feel?

Little Llama feels happy because

Mama loves him and is close by.

Page 27-28

Read

When Mama kisses Little Llama, he feels calm and happy.

Page 28-29

Read

How do you think that Little Llama feels now?

Llama felt a lot of different things. First he was happy to read with Mama, and then he was lonely when she left. Then he was scared and mad and made a fuss. Then he was sorry he fussed. When Mama came back, Llama was happy again.

Has something like this ever happened to you?

Appendix D

Detailed Description of the Intervention

Materials

Story books. A variety of children's story books were utilized in the intervention. These books were chosen because they each contained multiple, clear illustrations that depicted animals with easily identifiable emotions using their facial expressions and body language. All of the books had a simple format of text which was read by the clinician or with help from the clinician in chorus reading as needed. After the reading of the text, the clinician discussed the meaning of what was read to assure there would not be any linguistic difficulty in story comprehension. The clinician, following a script, read each story highlighting the emotions and causal relationships as they occurred in the story. As the clinician went through the book, the dialog and activities were adapted to meet the specific needs of each child. Sample lesson plan and script are included in Appendix C.

Toys for enactment activities. During the intervention, the participants were given many opportunities to reenact each of the stories using props. Toys such as stuffed animals depicted in the stories, balls, blankets, plastic foods, cups, spoons, and a cardboard doghouse were provided and allowed the children to explore and reenact each narrative. While following the outline of the story, each participant was encouraged to take on the different characters' thoughts, actions, and emotions while interacting with the props.

Facial emotion depicting cards. Cards with photographs of faces depicting emotion and drawings of faces depicting clear and identifiable emotions were used in games to encourage identification and classification of six emotions: *happiness, sadness, anger, fear, surprise, and disgust*. The games included matching pictures depicting the same emotion, creating the facial

emotion while looking in a mirror, making the facial depiction of an emotion for the other person to identify.

Session journal. At the conclusion of each session, the participants were presented with a three ring binder with their name on it filled with paper as their own journal. The participants were encouraged to dictate what they did in the session that day as the clinician wrote it. Any emotion words in the dictation were written by the participant in the sentence. The two oldest participants also kept a list of all emotion words and their categories on a page in their journal and added to it when new words were presented. The clinician periodically reviewed the journal with each child to revisit emotions discussed in previous sessions. The journal was read back to the child each session and the child was encouraged to make any changes or add any new dialogue to what they had already dictated. The participants were also encouraged to draw a picture in the journal depicting the story for the session.

Procedures

The following scenario was followed. At the beginning of one of the two weekly session, the clinician presented a new story book to the child while following a script which emphasized character motivation, labels for emotions, source of emotion, emotional inferences, contrasting emotions, and the cause and effect of emotions. During the following session following the story exploration, the child and the clinician would go through the story together in a role-play activity using the pictures as a guide. The child was encouraged to take on the perspective of several of the story's main characters and the clinician would take on the perspective of the remaining characters to reenact the story using props. During the reenactment, the clinician emphasized the character emotions and causal relationships while the child and clinician narrated the story actions and highlighted emotions through the use of connective words such as *because, so, if,*

then, and *since*. Mirrors were used to allow the child and clinician to mimic facial expressions and enhance visual identification of emotions.

An additional activity was introduced during the last 10 sessions of the 20 sessions. This task involved using photo and drawing face picture cards depicting facial expressions of the six target emotions. Various games were played using the cards to identify, match and express possible source of each emotion. The clinician and the participant had mirrors which were used so the participants could observe their own facial features when mimicking the emotions observed on the face cards. Mirrors were often used during story narration and reenactment as well. The mirror was intended to enhance the participant's ability to both identify and express emotions

Each session concluded with an opportunity for the participant to journal any key points learned during the session. Each participant was given a binder with their name on it containing notebook paper for their journal and a pencil. The participant was encouraged to dictate while the clinician wrote what was done during the session. The clinician would prompt with questions about emotion of the characters and the source of those emotions. The participant was encouraged to write each emotion word in the sentences in the journal and the 2 older participants also kept a page where all emotion words talked about were listed under categories and relationships for the student to reference. The participant was then encouraged to draw a picture relating to the story. The clinician periodically reviewed the previous entry to revisit the thoughts and emotions expressed in the last session. At the end of each session, the journal entry was read to the child and they were encouraged to make corrections. The session concluded with the clinician asking each participant what was hard to do during the session, and what each child enjoyed the most during the session.