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Increasing Emotion Word Productions in Children with Language Impairment with a Social Communication Intervention

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Increasing Emotion Word Productions in Children with Language
Impairment with a Social Communication
Intervention

Madelane Kate Dixon

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

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ABSTRACT

Increasing Emotion Word Productions in Children with Language Impairment with a Social Communication Intervention

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Master of Science

This thesis examines the efficacy of a social communication intervention in increasing the emotion word productions in school-aged children with language impairment (LI). The study had a multiple baseline single subject design in which 5 children between the ages of 6 and 11 received 20 intervention sessions, each lasting 20 minutes. Intervention activities included reading and discussing children's books, enacting the stories using toys, and journal writing to reflect on experiences in each session. Emotion word productions during intervention sessions were coded for total productions within the categories of *happiness*, *anger*, *sadness*, *fear*, *surprise*, and *disgust*. Productions were also coded for type (*spontaneous*, *in response to a question*, *cued*, or *imitated*) and valence agreement. The percentage of non-overlapping data (PND) was calculated (measuring the overall percentage of sessions in which the participants produced more emotion words than they did in the baseline session with the most emotion word productions) in order to show efficacy of the intervention for each participant. According to PND calculations, the intervention was generally effective for 3 of the 5 children and was effective in at least one emotion category for each participant. Participants demonstrated no difficulties with valence agreement. Data regarding types of production indicated that the majority of emotion word productions during the intervention were elicited in some way rather than spontaneous. These results suggest that children with LI increased the number of emotion word productions during the intervention, but were still dependent upon the scaffolding provided by the intervention.

Keywords: language impairment, school-aged children, social communication intervention, story enactment, social competence, emotional intelligence

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DESCRIPTION OF THESIS CONTENT

This thesis, *Increasing Emotion Word Productions in Children With Language Impairment With a Social Communication Intervention*, 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. The list of appendices provides a description of the five appendices in this thesis.

Introduction

Social communication can be defined as the ability to use “language in interpersonally appropriate ways to influence people and interpret events” (Olswang, Coggins, & Timler, 2000, p. 53). Its development is “founded on the synergistic emergence of social interaction, social cognition, pragmatics (verbal and nonverbal aspects), and [receptive and expressive] language processing” (Adams, 2005, p. 182). In order to communicate with other people, it is necessary to develop a wide range of cognitive, verbal, and nonverbal skills and behaviors. These behaviors impact the way we interact with and interpret the world around us. According to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5), social communication skills shape “effective communication, social participation, social relationships, academic achievement, and occupational performance” (American Psychiatric Association, 2013, p. 48).

Children with language impairment (LI) have “persistent difficulties in the acquisition and use of language across modalities...due to deficits in comprehension or production,” including language delays, reduced vocabulary, limited sentence structure, and impairments in discourse (American Psychiatric Association, 2013, p. 42). Although this definition of LI implies intact social functioning, research has shown that children with LI struggle not only with the form and content of language but also with its use for social interaction and often experience social problems. They often “operate on the outskirts of work and play groups” (Brinton & Fujiki, 1999, p. 53). In the following section, studies examining the social competence of children with LI are reviewed. This research suggests that these children have problems in various aspects of social communication.

Social Communication and LI

Research over several years has documented that children with LI can demonstrate a variety of problems in social interaction. For example, children with LI have been described as less assertive and less responsive in conversation than their typical peers. For example, Rice, Sell, and Hadley (1991) found that preschool children with specific language impairment (SLI)¹, relative to their peers in similar contexts, were more likely to use shorter verbal responses and more nonverbal responses in general interactions; they were also more likely to initiate interactions with adults rather than with other children. In the same study, the typical language peers were more likely to interact with each other than with the children with SLI. The children with SLI tended to ignore conversational bids, and had difficulties eliciting attention from peers in their attempts to initiate conversation (Hadley & Rice, 1991). Rice et al. (1991) and Hadley and Rice (1991) suggested that these conversational difficulties arise from poor comprehension or limited ability to formulate grammatical utterances. Bishop, Chan, Adams, Hartley, and Weir (2000) also found that elementary school-aged children with SLI were less likely to respond adequately to bids from adults, but they suggested that those difficulties were due to limited ability to understand and express communicative intent.

Children with LI also have difficulty performing a variety of common social tasks. For example, it has repeatedly been observed that these children have difficulty entering or accessing ongoing interactions (Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993; Liiva & Cleave, 2005). In these studies, individual children were presented with the task of accessing, or joining, an established interaction between two peers. Individual access skills were compared for children with SLI, their chronological age-matched peers, and their language level-

¹ The terms specific language impairment (SLI) and language impairment (LI) will be used synonymously throughout the literature review.

matched peers. Some children with SLI took longer than their peers to enter the group, while some failed to access at all. In all of these studies, none of the typical children failed to access the on-going interaction.

Brinton et al. (1997) noted that once children with SLI accessed the interactions, they talked less than their partners and were also talked to less by their partners. Liiva and Cleave (2005) also observed that after children with SLI accessed an ongoing interaction, they engaged in more individual play than group play and exhibited more onlooking behaviors, including watching other children from a distance. Craig and Washington (1993) suggested that poor receptive language skills and past negative social experiences influenced the children's abilities to access. They speculated that "many children with SLI must not access the larger and more complex social structures of their school and community interactive contexts" (p. 335).

Another task that is difficult for children with LI is that of resolving conflicts with peers. Timler (2008) presented hypothetical conflict scenarios to 8- to 12-year-old children with LI and their typically developing age-matched peers. She found that children with LI generated and selected fewer prosocial resolutions than their peers, and approached conflict situations with different social knowledge. Stevens and Bliss (1995) also found that children with SLI generated fewer conflict resolution strategies in hypothetical situations. These researchers did not find differences when children participated in a role-playing context, however.

Horowitz, Jansson, Ljungberg, and Hedenbro (2005) also looked at how children resolve conflicts in natural interactions. They specifically compared the behavior sequences of typically developing 4- to 6-year-old boys with those of 4- to 7-year-old boys with LI in naturally occurring conflict situations. Since attaining effective reconciliation after a conflict would require understanding and discussion of an opponent's emotions, Horowitz et al. hypothesized

that the boys with LI would be less able to reconcile with their conflict opponents. Observations and analysis of normal interactions confirmed this hypothesis; the authors stated, “The current results indicate the LI boys’ lack of speech and language skills cannot fully be compensated for through other communication skills such as facial expression or body language. Rather, the difficulty boys with LI experienced establishing and maintaining a reciprocal interchange contributed substantially to the LI boys’ lower reconciliation rates” (Horowitz et al., 2005, p. 448). They also found that conflicts between typically developing boys were more frequently caused by psychological harm, or hurtful words, while conflicts between boys with LI were more frequently caused by physical harm.

Finally, Fujiki, and McKee (1998) observed that children with SLI who participated in a negotiation task were less influential in the decision-making than their peers because they produced fewer and less sophisticated negotiation strategies. The children with SLI were unable to gear their negotiations to their peers.

Social Problems

Given the interactional problems cited above, it is not surprising that children with LI would have social difficulties in peer interaction (see Brinton & Fujiki, 2014 for review). By way of illustration, teachers have consistently rated children with LI as having poorer social skills and more behavior problems than their typically developing peers (Fujiki, Brinton, & Todd, 1996). Teachers have also rated children with LI as demonstrating higher levels of withdrawal than their typical peers (Fujiki, Spackman, Brinton & Hall, 2004; Hart, Fujiki, Brinton, & Hart, 2004). Gertner and Rice (1994) observed interactions between preschool-aged children with limited language abilities and their typically developing peers and found that those with limited language abilities were less likely to be identified by their peers as preferred

playmates during dramatic play. This suggests that children with SLI are less able to use the language necessary to form and keep friendships in early childhood than are their peers with normally developing language.

There is evidence that the social deficits of these children are linked to poor language ability (Gertner & Rice, 1994; Redmond & Rice, 1998). There is also evidence, however, that structural language skills, by themselves, do not explain all of the social difficulties observed in children with LI. For example, Hart et al. (2004) found that levels of certain sociable behaviors were linked to language ability. Levels of reticent withdrawal, however, were not.

According to Marton, Abramoff, and Rosenzweig (2005), reticent or physically aggressive behaviors and other social deficits in children with SLI were correlated more highly with lower social cognitive knowledge and lower social self-esteem than with lower language abilities. Children with SLI were shown to exhibit significantly lower social pragmatic skills than linguistic skills; Marton et al. (2005) suggested that deficits in executive function also contributed to deficits in social skills.

A social outcome that also affects social skills is social self-esteem. Marton et al. (2005) reported that low social self-esteem in children with SLI was correlated with reticent or aggressive social behaviors. In an earlier study, Jerome, Fujiki, Brinton, and James (2002) found that older children with SLI viewed themselves as less socially accepted by their peers. It is suggested by these studies that difficulties in social interactions may be linked to low social self-esteem.

Children with SLI experience difficulties in social interaction due to lower language abilities, but other factors (such as low social cognition and low social self-esteem) may also significantly impact social interactions. Another factor that may contribute to social problems in

children with SLI is emotional intelligence, an aspect of social cognition that is essential for social communication and for forming and maintaining relationships.

Emotional Intelligence and LI

An aspect of social cognition that has received attention is emotional intelligence. Although it has traditionally been assumed that children with LI have relatively typical emotional development, a number of recent studies have shown that children with LI experience difficulties understanding and regulating emotion. Emotion understanding includes recognizing and discerning one's own and others' emotional states and using the vocabulary of emotion (Denham, 1998). Some studies have shown that children with LI have difficulties with basic aspects of emotion understanding, such as recognizing emotions in facial expressions (Merkenschlager, Amorosa, Kiefl, & Martinius, 2012) or identifying emotion expressed by prosody (Fujiki, Spackman, Brinton, & Illig, 2008).

Even more difficult than identifying the physical manifestations of emotion is identifying and inferring emotions from situations. Ford and Milosky (2003) examined the emotional understanding of children with LI in their ability to both identify facial expressions and to infer emotions from social situations. They showed pictures of facial expressions depicting sadness, surprise, anger, and happiness to kindergartners with and without LI. Though all the children were similarly able to identify and label the facial expressions, children with LI struggled to connect them to inferred emotions from simple stories. As an extension of the Ford and Milosky (2003) study, Spackman, Fujiki, and Brinton (2006) presented older elementary school-age children with scenarios that were expected to elicit anger, fear, happiness, or sadness in a fictional character; the children were asked to indicate what emotion the character experienced and why, and to describe what that particular emotion would feel like. The study revealed that

children with LI had more difficulty inferring emotion than did their typically developing peers to infer emotions from situations. Though there was variation within the LI and typically developing participants, children with LI were less sophisticated in talking about emotions, even within their limitations for language formulation.

These difficulties observed in interpreting fictional social interactions would likely extend to actual interpersonal interactions between children with LI and their typically developing peers. These weaknesses in emotion understanding could contribute to the social difficulties experienced by children with LI, “[precluding] the level of understanding and closeness needed to facilitate friendship formation” (Spackman et al., 2006, p. 184).

Emotion regulation involves coping with negative or positive emotions and the situations that elicit them, and the strategic expression of emotion (Denham, 1998). Language ability is important in learning to regulate emotion, but emotion regulation is important to develop pragmatic language skills and interact in language learning settings (Fujiki, Brinton, & Clarke, 2002). In their preliminary investigation, based on teacher ratings, Fujiki et al. found that children with SLI—especially boys—had lower emotion regulation skills than their typical peers. These authors suggested that children with SLI may experience social problems due to weaknesses in emotion regulation.

In another study, teachers rated children with LI more poorly in emotion regulation. They reported that children with LI had particular difficulty with the ability to elevate emotion appropriately in interaction (Fujiki, et al., 2004). A regression analysis showed that both emotion regulation and language were significant predictors of reticence. This finding suggested that language and emotional behavior both contribute to the social difficulties experienced by children with LI.

Children with LI also have difficulty dissembling, or hiding, emotion when it is socially appropriate to do so, a task that requires both emotion regulation and understanding (Brinton, Spackman, Fujiki, & Ricks, 2007). Brinton et al. presented to children with SLI stories describing social situations in which a character experienced an emotion that would affect his or her relationship with another person if expressed. Children with SLI demonstrated accurate comprehension of the situation and appropriate emotion inference but produced fewer instances of dissemblance.

Evidence suggests that weaknesses in emotional intelligence may be a significant factor in the social communication problems of children with SLI. These children have difficulties inferring emotions from social situations, reflecting decreased emotion understanding; they also have difficulties appropriately regulating and dissembling emotions in order to behave in socially appropriate ways. It is understandable, then, that deficits in both language and in emotional understanding could work together to cause social problems for children with SLI. Given these limitations, it is likely that these children would require support that addresses more than the syntactic, semantic, and pragmatic elements of language, but that also extends to social communication.

Social Communication Interventions

Researchers have shown that children with LI struggle with social communication, and pragmatic models have been applied to treatment in LI since the late 1970s (Gallagher, 1990). There have been relatively few studies demonstrating the efficacy of social communication interventions in general, and even fewer examining emotional intelligence, however. In 2006, the American Speech-Language-Hearing Association (ASHA) established an ad hoc committee on language use in social interactions in school-age children to assess the available efficacy data

(Gerber, Brice, Capone, Fujiki, & Timler, 2012). In collaboration with ASHA's National Center for Evidence-Based Practice in Communication Disorders (N-CEP), the committee was charged with developing an evidence-based systematic review of social communication interventions. The review focused on children between the ages of 6 and 11 years. The search yielded eight exploratory studies that met the committee's posed criteria (Adams, 2001; Adams, Lloyd, Aldred, & Baxendale, 2006; Bedrosian & Willis, 1987; Dollaghan & Kaston, 1986; Klecan-Aker, 1993; Merrison & Merrison, 2005; Richardson & Klecan-Aker, 2000; Swanson, Fey, Mills, & Hood, 2005). These studies used a range of methodologies and addressed a variety of social communication goals. Gerber et al. (2012) suggested that pragmatic treatment research—especially targeting children with LI—is still in its infancy.

The Gerber et al. (2012) review considered work from 1975 to 2008, and focused on school-age children. A number of additional studies that were conducted on younger and older children with LI were not included. For example, Stanton-Chapman and colleagues used single subject designs to evaluate social communication interventions for preschool children at risk for poor language or social skill development (Stanton-Chapman, Denning, & Jamison, 2008; Stanton-Chapman, Denning, & Jamison, 2012; Stanton-Chapman, Kaiser, Vijay, & Chapman, 2008; Stanton-Chapman & Snell, 2011; Stanton-Chapman, Walker & Jamison, 2014). Most children in these studies showed improvement in targeted communication and interactive play behaviors, including turn-taking, requesting, initiating, and responding.

Additionally, a number of studies examining social communication behaviors have been published since 2008. Of this work, perhaps most notable is that of Adams and colleagues (Adams et al., 2012; Adams, Lockton, Gaile, Earl, & Freed, 2012). These researchers administered a social communication intervention to school-age children with pragmatic

language impairments. Using a randomized trial design, these authors compared a systematic social communication intervention to a treatment-as-usual condition. The researchers developed a detailed, systematic social communication intervention including procedures for individualized treatment plans. Outcomes were measured and compared for both interventions. These authors reported that the manualized intervention did not produce significant gains in structural language over traditional treatment as measured by standardized testing, but did improve conversational competence, pragmatic functioning, and classroom learning skills (as rated by parents and teachers).

Few studies have addressed the relationship between emotional intelligence and social communication in children with SLI directly. Of the qualifying studies in the Gerber et al. (2012) review, only Richardson and Klecan-Aker (2000) specifically addressed emotional intelligence. Examining children diagnosed with learning disability, these authors considered the efficacy of a pragmatic language intervention on receptive and expressive identification of internal responses or emotions, in addition to conversation skills and qualitative and quantitative descriptions of objects. The children who participated showed improvement in all areas addressed and in overall pragmatic language skills.

Though there have been few studies specifically targeting emotional intelligence in social communication interventions, the studies that have been done suggest promising results. Several studies using a case study design have examined the effects of these emotional intelligence-targeted social communication interventions on emotion understanding, language structure, and teacher ratings of sociability (Gibbons, 2014; Guerra, 2014; Harris, 2011; Mansfield, 2013). Results were varied, but provided a positive basis for continued research and implementation of emotional intelligence tasks in improving social communication. This thesis is an extension of

the Gibbons (2014) and Mansfield (2013) work. Both studies were portions of a larger project in which a story enactment social communication intervention focusing on emotion words was provided for six children with social communication problems, including those with a diagnosis of LI and Autism Spectrum Disorders (ASD). Gibbons (2014) and Mansfield (2013) each implemented a case study design to analyze the outcomes for three of the six children. They implemented a single case design to look at each child's expressive emotion labels before and after the intervention. In Gibbons' (2014) study of children with LI, two of the three children responded positively, improving in at least one emotion category. Mansfield's (2013) study included two children with ASD and one with LI; all three children responded positively, maintaining or increasing accurate productions of emotion words. The purpose of this thesis was to extend these previous studies by using a single subject multiple baseline design to examine the efficacy of a 20-session story enactment intervention in a school setting in increasing the accurate production of emotion words—including those expressing happiness, fear, anger, and surprise.

Method

This thesis is a portion of a larger research project to examine the efficacy of a social communication intervention for five children with LI. The larger social communication intervention examined changes in productive syntax, prosocial behaviors, and emotional intelligence for each child. A multiple baseline single subject design was employed. The sessions were conducted at an elementary school by a graduate student who provided 19 or 20 intervention sessions for each child. Each session was approximately 20 minutes in length. During these sessions, the clinician discussed and taught emotion words in the context of reading and acting out children's books. The production of emotion words was the focus of this thesis.

Participants

Six children, four girls and two boys, participated in the intervention program. The participants ranged in age from 6;1 to 11;3 (years; months). Three of the four girls were sisters. Participants were recruited with the help of a speech-language pathologist at a local elementary school. All of the children had been identified with a primary diagnosis of LI and were receiving speech-language intervention to address language and articulation goals. The children presented with a complex pattern of concerns involving both linguistic and behavioral issues. However, at the time of the study, none of the children had a formal diagnosis of intellectual disability or behavioral disorder. One child had an initial diagnosis of autism spectrum disorder (ASD), but this was later questioned by his educational team. All participants demonstrated hearing that was within normal limits, based on a pure tone hearing screening at 20 dB performed by the school speech-language pathologist. Additionally, all participants were determined to have IQs within typical limits (within one SD of the mean) based on standardized IQ testing conducted by a school district psychologist.

The following standardized measures of language were administered by graduate student research assistants in conjunction with the current study: 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-5 was used to provide a consistent measure of language abilities across all of the participants. The CCC-2 was used to document and evaluate each child's social communication abilities. The results of these tests are presented in Table 1.

The speech-language pathologist selected and recruited participants after reviewing all children in her caseload currently enrolled in intervention for LI. After identifying those with difficulties in social communication, the speech-language pathologist contacted parents

Table 1

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

Instruments	Participants					
	JRS	AIK	SS	AdK	MK	JS
CCC-2 ¹ Subtests						
Speech	1	1	0.4	0.1	0.1	37
Syntax	16	9	0.1	1	0.1	2
Semantics	5	5	1	1	2	2
Coherence	5	2	1	16	2	2
Initiation	16	50	1	37	25	16
Scripted Language	16	25	1	37	25	50
Context	1	25	2	16	2	1
Nonverbal Communication	1	16	1	9	1	2
Social Relations	5	16	5	37	1	9
Interests	9	50	2	91	25	63
GCC ² percentile	2	7	0.1	4	1	4
SIDI ³	1	16	6	24	12	7
CELF-5 ⁴						
Core Percentile	0.2	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).

regarding participation. Those parents who were interested provided written permission for their child to participate. The previously mentioned standardized tests were then administered.

Following testing and consent, intervention began. Throughout the intervention process, researchers coordinated with the school speech-language pathologist in order to check progress according to previously established Individualized Education Program (IEP) goals for each child. Five of the six children began intervention in the Winter school semester of 2014, and continued during the Fall semester of 2014. One child began intervention in the Fall of 2014. The results

of the intervention presented later are for the Fall 2014 semester. All children were seen twice a week for two 20-minute-long sessions so that the intervention would fit into their regularly scheduled language intervention times at their elementary school. Each participant is described in more detail below.

JRS. JRS was age 11;3 at the beginning of the study. He was a Caucasian male. As an infant, JRS had chronic otitis media. By parent report, JRS was ‘deaf’ until age 3 or 4. Tubes were placed at age 3;6, and audiometric testing at age 7;4 revealed normal hearing. Testing from a pediatric rehabilitation center, also completed at age 7;4, revealed severe articulation deficits and noted a discrepancy between receptive and expressive language abilities, with receptive language abilities being higher. However, at the time of the study intelligibility was not an issue. JRS was observed to have a short attention span and difficulty transitioning between tasks. Later testing at 10;4 and again at 11;3 showed low overall language scores and mild articulation errors. At the beginning of the study, JRS was receiving resource services for reading, math, and writing, and speech-language services for articulation errors and language skills, including listening and recall.

According to ratings by his teacher on the CCC-2, JRS had particular difficulty with the speech, semantics, coherence, scripted language, context, and social relations subtests. His core language percentile rank on the CELF-5 was 0.2.

AIK. AIK was age 10;1 at the beginning of the study. She was a Caucasian female who was identified with LI in preschool. At the time of this study, she was receiving speech-language therapy at her elementary school on a pullout basis to address articulation and complex syntax. She was also receiving resource services for reading. AIK was identified with severe phonological processes and articulation deficits following testing at age 4;10, and she continued

to present with velar fronting and cluster reduction at age 6;11. Academic testing by school personnel at age 8;0 revealed that she had learning problems. The school speech-language pathologist described her as a child who participated in social interactions and had friends. However, AIK had difficulty making inferences or adding novel information to a topic and had particular problems inferring emotional reactions. In addition to these social communication difficulties, she also had difficulty with structural language. Semantic, syntactic, and morphological errors impeded her ability to communicate effectively.

As reported by her teacher in the CCC-2, AIK had difficulty on multiple subtests, including speech, syntax, semantics, coherence, nonverbal communication, and social relations. Her core language score on the CELF-5 was in the 8th percentile.

SS. SS was 9;6 at the beginning of the study. He was a Caucasian male who was diagnosed with high-functioning autism at the age of 5. This diagnosis was later confirmed by a neuropsychologist when he was 8. However, at the time of this study his teachers and other members of his school educational team ruled out the diagnosis of autism. His diagnosis at the time of the study was LI.

SS was homeschooled until 2nd grade. At that time he was enrolled in a public school (age 8;3). He was diagnosed with LI by the school speech-language pathologist shortly after enrollment. SS had received speech and language services for fluency, articulation, and language (targeting topic maintenance and complex sentences) since entering school. SS was also diagnosed with learning difficulty and was receiving special education services for math, reading, and writing. SS was attending a mainstream 3rd grade class at the beginning of the study, but also received three hours of self-contained resource during the day.

According to the school speech-language pathologist, SS was motivated to interact socially but had difficulty appropriately adapting behavior to different social settings. He had difficulty interpreting facial or vocal cues from conversational partners, including facial expressions, voice inflection, and nonverbal responses (e.g., SS occasionally produced unusual prosodic features). He also struggled to respond appropriately to topics introduced by others. SS seemed somewhat aware of his inappropriate behavior, but continued to demonstrate impulsivity and difficulties in social interactions. Standardized testing reported in Table 1 indicated that SS scored below the 5th percentile in all categories on the CCC-2. His core language score on the CELF-5 was in the 2nd percentile.

AdK. AdK was a Caucasian female who was 7;11 at the beginning of the study. She was diagnosed at age 6;4 with SLI and SLD. She has been receiving resource services for writing and speech-language therapy for articulation and language. AdK was in a mainstream 2nd grade class and began special services for reading at the same time she was enrolled in the study.

AdK's school clinician reported that she was motivated to interact with her peers and often very "chatty." She was able to stay on topic generally, but did not contribute much to conversation. The school clinician suggested that this might be the result of little exposure to or knowledge of common topics of interest for children. AdK also had difficulty interpreting, conversational partners' responses, related to difficulty making inferences in conversation.

The CCC-2 revealed deficits in nonverbal communication, with AdK scoring in the 9th percentile on this subtest. She scored in the 16th percentile for coherence and in the 1st percentile for speech, syntax, and semantics. Her CELF-5 core language score was within the 23rd percentile.

MK. MK was a Caucasian female who was 6;7 at the beginning of the study. She was evaluated in kindergarten at age 5;7 and diagnosed with LI and SLD. She was enrolled a mainstream 1st grade class with an additional three hours of resource services for writing and math. She was receiving speech and language intervention services to address articulation and language deficits.

MK's clinician noted that she was quiet and shy, speaking at a low volume in therapy and classroom settings. She demonstrated delayed verbal responses to teachers and peers and often used off-topic and incomplete sentences. She rarely initiated verbal social interactions. MK appeared to have difficulty expressing emotion, as well as interpreting and responding appropriately to emotions expressed by others.

The CCC-2 revealed that MK had deficits in nonverbal communication and social relations (see Table 1). She scored in the 2nd percentile for all subtests in the structural areas of speech and language. Additionally MK produced a core language score in the 14th percentile on the CELF-5.

JS. JS was a Caucasian female who was 5;11 at the beginning of the study. She was diagnosed with developmental delay (DD) prior to age 3. It was school district policy to give all children who qualified for early intervention services this diagnostic label. However, JS was later given more specific diagnoses of LI and attention deficit hyperactivity disorder (ADHD). She attended a special needs preschool at age 4. An evaluation at this center revealed significant delays in social cognitive abilities, social/emotional development, and receptive/expressive language. JS was enrolled in a mainstream kindergarten class and was receiving resource services for reading at the beginning of the study. She was also receiving speech and language therapy for articulation and language.

The school clinician noted that JS had limited attention and had difficulty staying on topic. These weaknesses, in addition to low vocabulary, caused JS to provide inconsistently appropriate responses to questions.

JS's scores on the CCC-2 revealed weaknesses in nonverbal communication and social relations, with scores in both subtests lower than the 6th percentile (see Table 1). Though she scored in the 37th percentile for structural aspects of speech, her scores for syntax, semantics, and coherence were in the 2nd percentile or lower. Her core language score was in the 7th percentile on the CELF-5.

Intervention Plan

The intervention was structured as follows. As in the Adams, Lockton, Gaile, Earl, and Freed (2012) and Fujiki et al. (2013) studies, treatment approach and intervention activities represented best practice to address and incorporate each child's specific IEP goals for social language intervention. The treatment was administered by a graduate student under the direction of two doctoral-level speech-language pathologists and the school speech-language pathologist. All sessions took place in a quiet room at the elementary school. The social communication intervention was delivered during each child's regularly scheduled school speech and language intervention times (two 20-minute-long sessions per week).

Baseline (3+ sessions). A single-subject multiple baseline design was used. One child received three baseline sessions, one child received four baseline sessions, and the remaining three children received six baseline sessions to achieve stable performance. Each baseline session consisted of the following three activities for each child: (a) the child was asked to tell a story based on a wordless picture book (using books from the Mercer Mayer frog stories series; Mayer, 1967-75), (b) the child was asked to identify the emotion from a pictured scenario, and

(c) the child was presented with a topic of conversation and allowed to comment with the examiner only producing back channel responses (Brinton, Fujiki, & Powell, 1997). The results of the story retell were used to provide the baseline data for the present study.

Intervention (20 sessions). The participating children began intervention in a staggered manner following the completion of the baseline sessions. Each child had 20 individual treatment sessions (15 to 25 minutes long) with the graduate student clinician, though two participants (AdK and SS) only received 19 intervention sessions. Each session consisted of a combination of the following steps: (a) story exploration, including reading and discussing the emotions experienced by central characters and identification of the sources of those emotions, (b) story enactment focusing on those emotional experiences and their sources, (c) emotion picture card games, and (d) journal entry to review activities and emotion words learned. Each session was somewhat flexible in choosing activities in order to best address the individual goals and needs of each child. The Mercer Mayer frog stories were used as a probe once a week to measure spontaneous productions of emotion words. Other books were used to discuss and practice emotion words. The clinician and children focused on each story and its related activities for two to three sessions. After reading and discussing the emotions and prosocial experiences of the characters in the stories, the child and clinician used stuffed animal toys and other props to reenact the stories. The clinician elicited productions of appropriate emotion words by asking questions (e.g., “How does the llama feel?”), cueing (e.g., “The llama feels ____.”) and modeling (e.g., “The llama feels excited!”). The activities were designed to model complex syntactic forms and at the same time improve social and emotional understanding. Activities also were designed to encourage prosocial behaviors and participation in groups. Each of the stories included some emotional experience and a prosocial message.

Follow-up (3 sessions). Following the completion of the treatment session, all children received three follow-up sessions. The Mercer Mayer wordless picture books used during baseline session activities were re-introduced and the children were asked to tell the story.

Analysis

In analyzing the intervention, verbal productions of emotion words during the intervention sessions (in the categories of *happiness*, *sadness*, *anger*, *fear*, *disgust*, and *surprise*) were recorded and coded (see Appendices B and C) to determine whether the number of productions increased as a result of the social communication intervention. All sessions for each child were coded for emotion words produced by category, type of production/elicitation, and accuracy of production.

Emotion-based words were analyzed for accuracy in relation to particular emotion categories (e.g., *happy*, *excited* and *joyful* were considered correct productions for the target category of *happiness*). In this analysis, coded emotion-based words primarily included specific emotions (e.g., *happy*, *sad*, *mad*); descriptions of emotional facial expressions (e.g., *smiley*, *frowny*) were also included. Productions of words such as *like*, *love*, and *hate* were counted due to their strongly emotional meanings. Adjectives describing appearances or actions (e.g., *funny*, *silly*, or *cute*), expletives, and interjections (e.g., *Whoa!*, *Hey!*, *Dang it!*) were not coded.

In order to code the types of production, responses were coded into four categories: *spontaneous*, *cued*, *imitated*, and *in response to a question*. Emotion words were coded as *spontaneous* if they were not preceded by clinician cues or questions. Emotion words were coded as *cued* if the emotion-based words were read, or if the clinician provided a phonological cue (/h/ for *happy*) or facial prompt (frown for *sad*). Emotion words were coded as *imitated* if the child repeated an emotion word within five seconds of a production of the word by the clinician.

Finally, emotion words that were produced as a response to any question (“How does Pig feel?”) were coded as *in response to a question*.

Emotion-based words were coded for both valence and whether the valence matched the target valence. Valence was defined as the tone of the emotion word. In this study, *happiness* was considered to have positive valence, and *sadness*, *anger*, *fear*, and *disgust* were considered to have negative valence. *Surprise* was considered as having either a positive or negative valence depending on the context (a “good surprise” like a new puppy, or a “bad surprise” like a spider falling on the child’s head). In this coding category, it was determined whether the valence matched or did not match the valence of the target emotion word; if it did not match, it was considered a valence error. For example, a production of the word *happy* when the target word was *afraid* would be considered a valence error because the words had opposite valences, while a production of the word *sad* for the same target word would be considered as acceptable because the words had the same valence.

Emotion words during the intervention were coded by three research assistants (two graduate students and one undergraduate student at Brigham Young University [BYU] in Communication Disorders). After training together on the coding manual, research assistants watched and coded 10% of the sessions. Coding took place in the BYU social communication lab where video-recordings of the sessions were stored. Comparisons revealed a 94% overall inter-rater reliability for coding emotion-based words and all coded categories. The inter-rater reliability specifically for correct valence of the emotion-based words was 97%. The research assistants watched each session and recorded all emotion words the children produced, the emotion category for each word, whether the word matched the target category, the time the word was produced, the type of production, whether the valence matched the target, and whether

the word was specific in the context or overextended. After establishing reliability, the remaining sessions were divided between the research assistants and coded.

Coded data were summarized and total emotion word productions were graphed for each child within each emotion category. The graphs were used for visual inspection of individual performance and comparisons within the group. The percentage of non-overlapping data (PND) was calculated to determine the efficacy of the intervention. This was done by counting the number of data points (representing total emotion word productions) during intervention that were higher than the highest data point during baseline sessions, dividing this number by the total number of data points (number of intervention and follow-up sessions), and multiplying by 100 (Scruggs & Mastropieri, 1994). In this thesis, PND calculations represent an increase in emotion word productions after baseline sessions. Calculations revealing percentages of 90% or greater indicated that the treatment was highly effective. Percentages between 70% and 90% indicated that treatment was moderately effective, and between 50% and 70% indicated that treatment was mildly effective. Percentages less than 50% showed that treatment was ineffective, and changes were likely due to chance (Scruggs & Mastropieri, 1994).

Results

Total productions in the emotion categories of happiness, *anger*, *sadness*, *fear*, and *surprise* are represented in Figures 1-5. These were used to calculate the PND following baseline productions, which are also presented in the following section.

Data represent the productions of five of the six participants. JS demonstrated behavioral problems near the beginning of the intervention program that required changing the intervention tasks. Because her intervention differed from the other participants, productions for JS were not included.

Disgust

The participants had little understanding of emotion words in the category of *disgust* during baseline testing. Because *disgust* was a later developing emotion, it was not directly targeted during the intervention. The fact that performance was relatively stable indicated that the children did not learn this category of emotion word spontaneously during the course of the intervention. The PND for this category was calculated for each child and are presented in Appendix D.

Happiness

Figure 1 represents the total productions of emotion words in the category of *happiness* for each participant across all sessions. Overall, participants produced the most words in this category. There were no substantial differences between baseline and follow-up session data. Productions were variable throughout the intervention, but according to PND calculations, most children showed improvement. The PND indicated that the intervention was moderately effective for all participants except SS (PND = 36%). AIK had the highest PND (82%), followed by MK (78%), JRS (70%), and AdK (50%).

Anger

Figure 2 represents the total productions of emotion words in the category of *anger* for each participant across all sessions. Productions for each participant were variable throughout the intervention program, but all participants maintained or increased productions from baseline to follow-up sessions.

Although most children made gains during the intervention, the production of *anger* words during the three follow-up sessions showed little change from baseline to follow-up for

Happiness

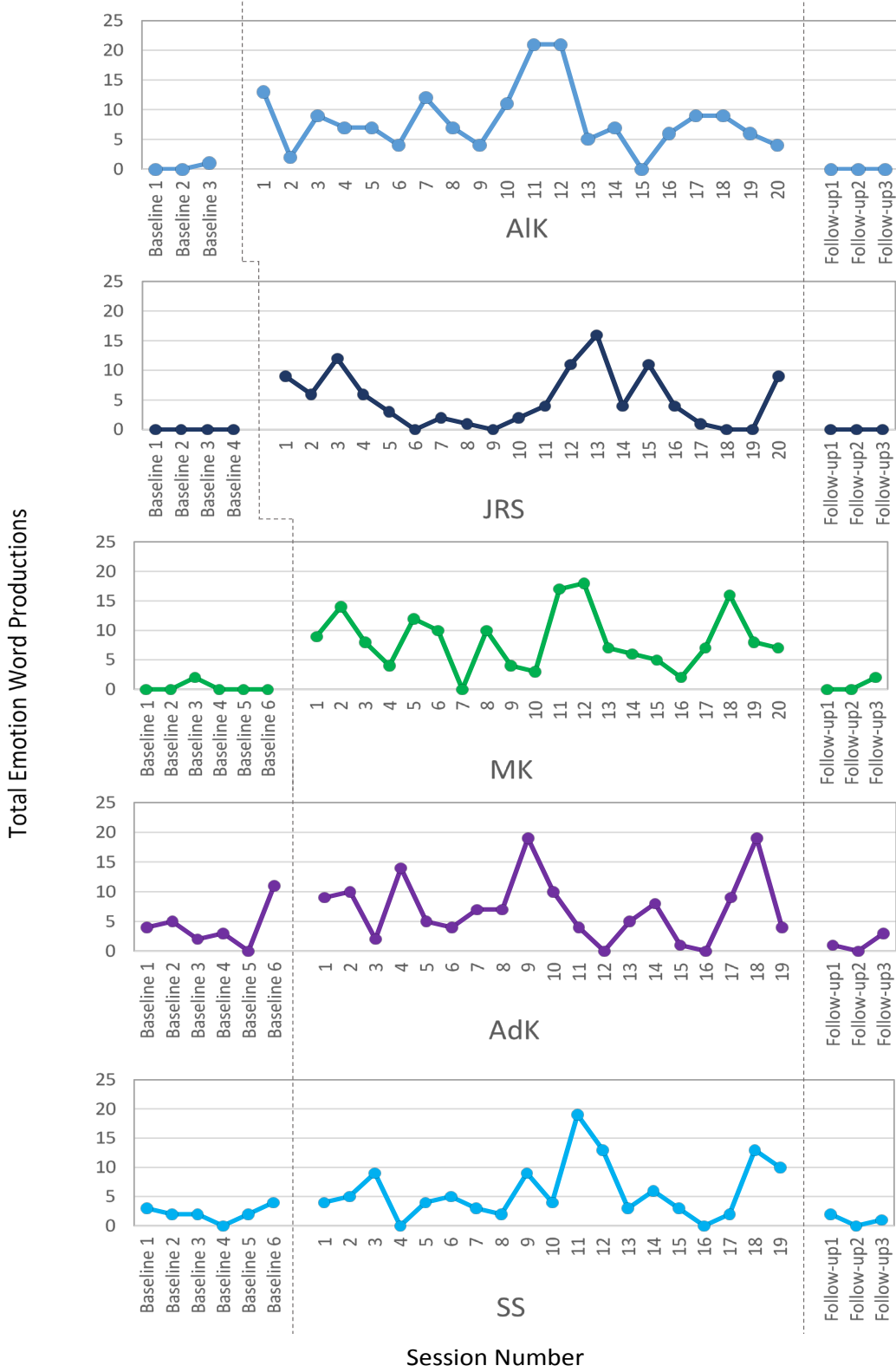


Figure 1. Total productions of emotion words in the category of happiness, per child, per session.

Anger

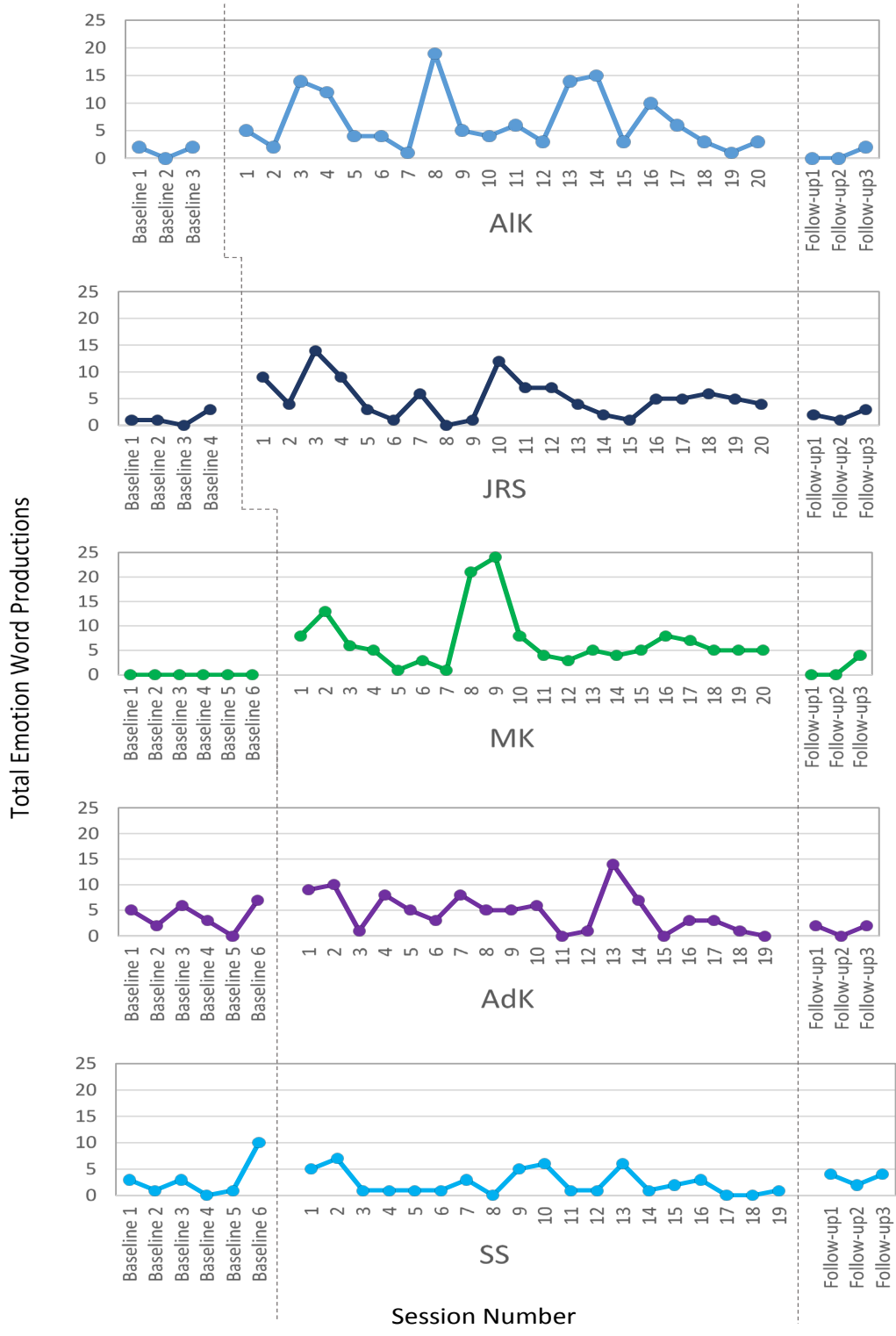


Figure 2. Total productions of emotion words in the category of anger, per child, per session.

most children. One exception was MK who produced no *anger* words across six baseline sessions; during the third follow-up session she produced four *anger* words. She also produced the most *anger* words during one session (intervention session 9, with 24 words), and had a high PND (91%), indicating treatment was highly effective. Based on PND, the intervention was moderately effective for AIK (74%) and JRS (78%). The treatment was ineffective for SS and AdK, who produced PND figures of 0% and 23%, respectively.

Sadness

Figure 3 represents the total productions of emotion words in the category of *sadness* for each participant across the intervention program. Productions throughout the intervention were variable for each child. The treatment was moderately effective for MK, AIK, and JRS, who produced PND figures of 65%, 78%, and 70%, respectively. As was observed with *anger*, the treatment was ineffective for SS (PND = 32%) and AdK (PND = 18%). It was of note that there were relatively small changes between the baselines and follow-up sessions.

Fear

Figure 4 represents the total productions of emotion words in the category of *fear* for each participant across all sessions. Baselines for all participants were mostly flat, and this extended to follow-up sessions. Most children produced no *fear* words during any of the follow-up sessions, except for AdK who produced one word in each follow-up session and AIK who produced one word in the third follow-up session. The general lack of change between baseline and follow-up sessions was also reflected by the PND across the participants. AIK had the highest PND (52%), with all of the other children falling below the 50% mark, indicative of ineffective treatment.

Sadness

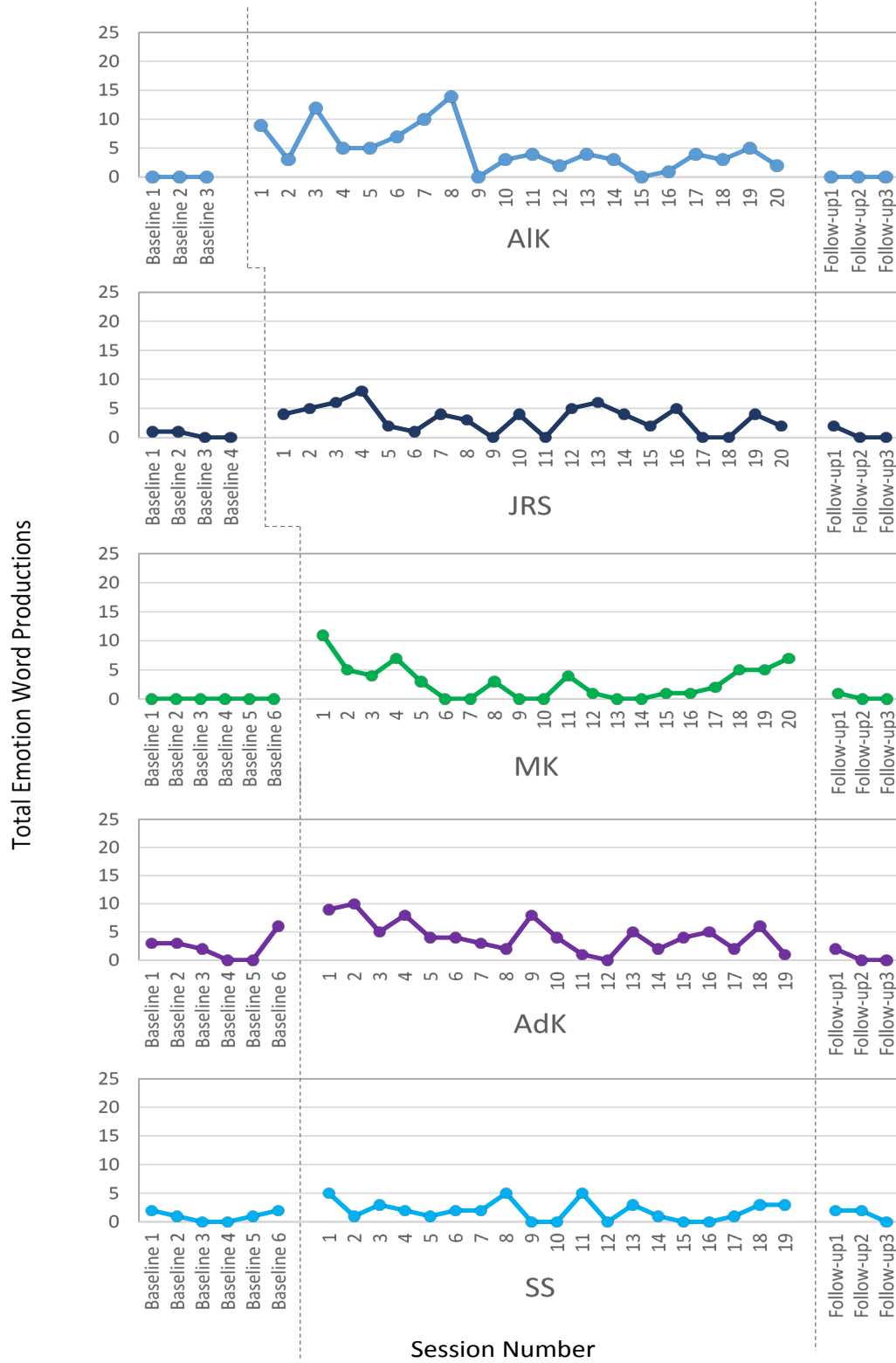


Figure 3. Total productions of emotion words in the category of sadness, per child, per session.

Fear

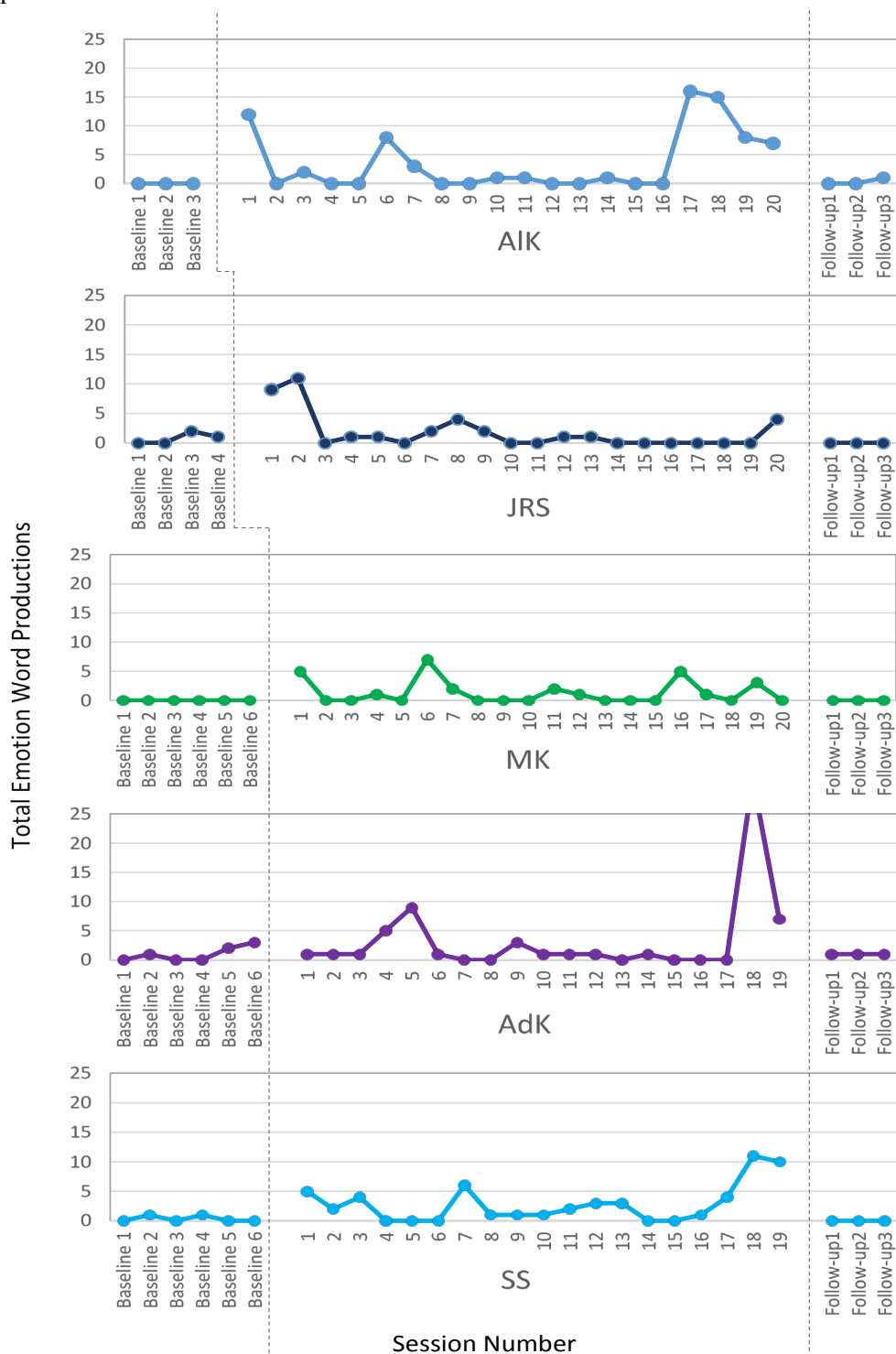


Figure 4. Total productions of emotion words in the category of fear, per child, per session.²

² The total number of emotion word productions in the category of *fear* by AdK in session 18 was 31. Adjusting the scale to include this data point would have distorted the rest of the graphs.

Surprise

Figure 5 represents the total productions of emotion words in the category of *surprise* for each participant across all sessions. There were fewer overall productions of words in this category than in other categories of *anger*, *sadness*, or *fear*. With the exception of AdK, none of the participants produced any *surprise* words in baseline sessions. Treatment was moderately effective for SS, AIK, and JRS, who produced PND of 59%, 57%, and 61%, respectively. *Surprise* was difficult for MK (PND = 26%) and AdK (PND = 18%). Only AdK and JRS produced any *surprise* words in follow-up sessions, with each child producing one occurrence.

Types of Productions

Throughout the intervention, all participants produced emotion words with varying kinds of support. Baseline and follow-up session data were coded as *spontaneous*. The great majority of productions across intervention sessions were elicited in some way (*in response to a question*, *cued*, and *imitated*). Generally, the highest percentages overall were observed in the *in response to a question* category, and the lowest in *imitated*. Though productions were variable across participants and sessions, and few outstanding differences were observed between participants, MK consistently had higher percentages of *imitated* productions than the other participants. A table reporting percentages of each type of production for each participants in each intervention session is presented in Appendix E.

Valence Agreement

Emotion word productions were coded for valence accuracy throughout the intervention sessions. All valence agreement percentages across participants and sessions were above 90%, and most were 100%. MK had the most sessions across the intervention that were below 100%, and JRS had the fewest. MK had nine and JRS had one, relative to AdK, SS, and AIK who had

Surprise

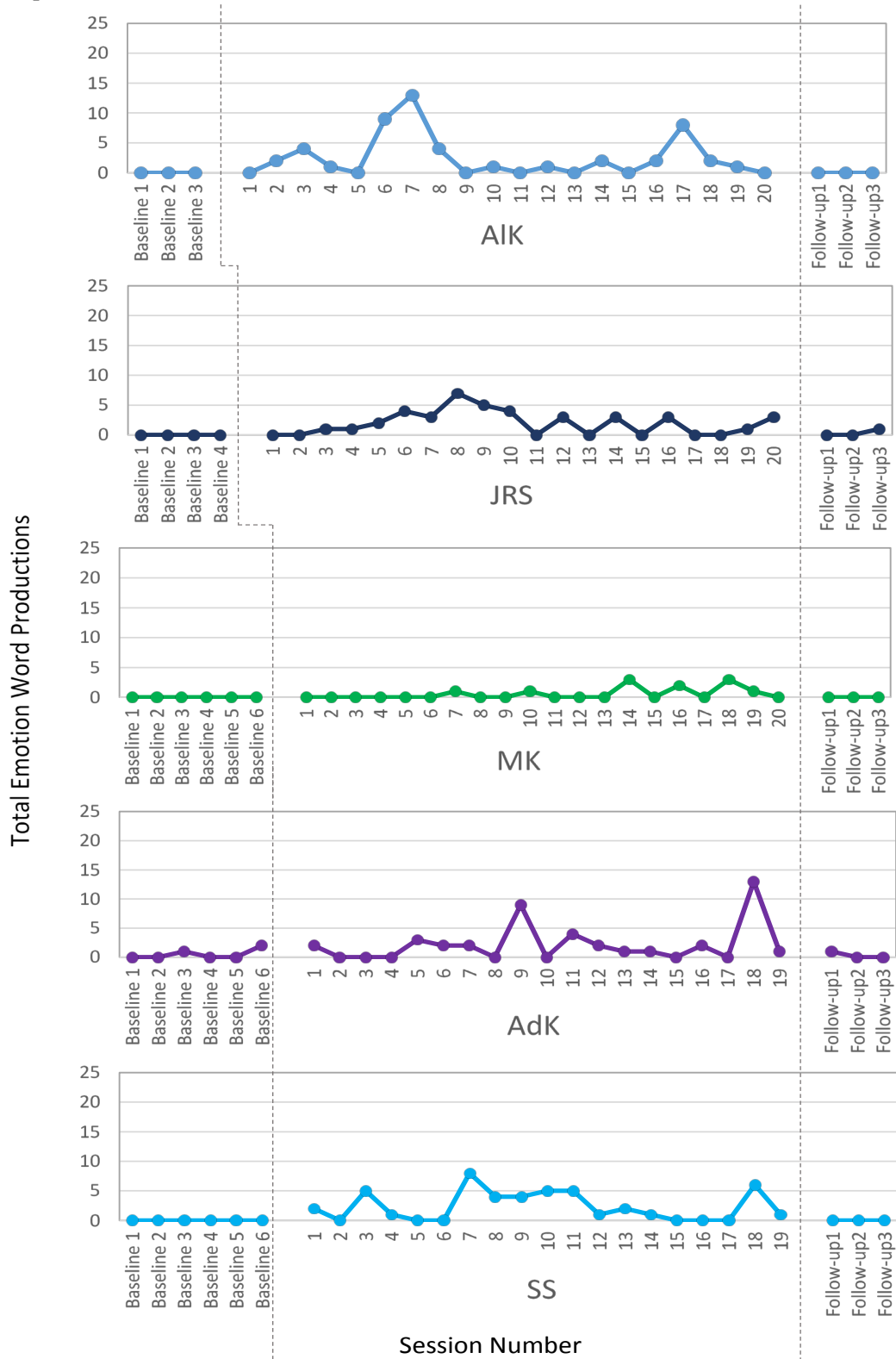


Figure 5. Total productions of emotion words in the category of surprise, per child, per session.

five, four, and three, respectively. Percentages of valence agreement in each intervention session for each participant are presented in Table 2.

Table 2

Valence Agreement Percentage per Intervention Session

Participant	Session Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MK	97	92	100	100	100	96	100	100	100	100	97	96	100	93	100	94	100	96	95	100
AdK	100	100	100	98	100	100	100	100	100	100	100	100	96	94	100	90	100	97	100	
SS	100	100	95	100	100	100	100	100	94	100	95	100	100	100	100	100	100	100	96	
AIK	100	100	100	100	100	100	100	100	100	100	98	100	96	100	100	100	98	100	100	100
JRS	100	100	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Discussion

Recent work has suggested that children with LI not only have difficulty with the structure and content of language, but also with social communication. An important aspect of social communication is emotional intelligence. Children with LI have been found to have difficulties recognizing and identifying emotions in facial expressions (Merkenschlager et al., 2012) or vocal prosody (Fujiki et al., 2008). They also have difficulty regulating their emotions (Fujiki et al., 2002; Fujiki et al., 2004) and appropriately dissembling emotions (Brinton et al., 2007). These children also have difficulties inferring the emotions experienced by others (Ford & Milosky, 2003; Spackman et al., 2006).

This study was one component of a larger project designed to investigate the efficacy of a social communication intervention for children with LI. In this investigation, the production of

emotion-based words in the categories of *anger*, *sadness*, *fear*, and *surprise* was examined. The purpose was to determine whether a 20-session story enactment intervention would help children with LI increase the production of emotion words. Most participants took part in two semesters of the intervention. This thesis presents data from the second semester of intervention. The results for each participant, followed by overall impressions of the study, are discussed as follows.

Production of Emotion Words by Each Participant

JRS. Though the other children in the study had already participated in the intervention program, this was JRS's first experience with the story enactment intervention. Throughout the intervention, the clinician helped him focus on memory strategies for recalling narrative information from the stories used in intervention. Even though discussion of the emotion words and experiences of the characters was not the clinician's only focus for him, he still made moderate progress on four of the five targeted emotion word categories (*happiness*, *anger*, *sadness*, and *surprise*). Treatment did not result in changes for the remaining emotion of *fear*.

JRS produced very few emotion words in the five baseline sessions, producing two words for *sadness*, three for *fear*, and five for *anger*. During intervention his PND was the highest for anger (PND = 78%). Overall, JRS performed well and improved over the course of the intervention. He was the oldest child to participate; this may have allowed him to interact and learn at a higher level or faster rate than the younger participants. Perhaps more importantly, he interacted well with the clinician and was motivated to participate in and prepare for intervention sessions. With prompting from the clinician, JRS was open to sharing personal experiences and relating them to emotions and experiences of the characters in the books. This likely helped him learn and produce more emotion words within the structure and support of the intervention.

AIK. AIK produced very few emotion words in her baseline sessions. This performance suggested a limited understanding of the targeted emotion word categories. Follow-up sessions also produced a limited number of productions. AIK tended to describe pictures (e.g., “Frog is over there and the boy is over here,” or “The boy was like ‘Ugh!’”) rather than telling a story for follow-up tasks. She also seemed to become bored with the Frog stories over time, and she rushed through the story retell task. This would suggest that follow-up data for AIK did not fully represent her understanding of the emotion word categories. Even though baseline and follow-up productions were low, she was able to produce many emotion words with the scaffolding provided by the intervention sessions.

AIK produced gains across all five targeted emotion words. The PND calculations revealed that the intervention was moderately effective in the categories of *happiness*, (PND = 83%), *anger* (PND = 74%), *sadness* (PND = 78%), *fear* (PND = 52%), and *surprise* (PND = 57%). The PND for *happiness* indicated that intervention was the most effective for this category. Observations suggested that she had the greatest understanding of words in this category and used them the most throughout intervention. Even so, AIK had no productions in the follow-up sessions in this category. The fact that a high percentage of AIK’s productions were responses to questions suggests that she needed a fair amount of support to produce emotion words, but with that support she performed well.

AIK’s performance on the intervention was among the best of the children studied. She was the second-oldest to participate, and this may have helped her learn and produce more words across all categories within the scaffolding of the intervention. Data in this study represent her second time participating in the intervention. Prior experience may have also contributed to her progress.

SS. Calculations of PND for SS revealed no changes for three of the five targeted emotion word categories. The only category for which the PND indicated growth was *surprise* (59%). This was also the only category for which he produced no words during baseline sessions. The fact that he showed the greatest amount of growth in the category in which he demonstrated the least amount of knowledge in baseline was encouraging.

SS's production of emotion words in the other four categories showed less change, with PND figures of less than 50% (*happiness*, PND = 36%; *anger*, PND = 0%; *sadness*, PND = 32%; *fear*, PND = 46%). The especially low PND for the category of *anger* was influenced by an uncharacteristic spike in performance during his final baseline session. It is unknown what caused this spike. It may have been the case that SS had a stronger understanding of this word than his other baseline sessions indicated. It may have also been related to the specific story he was working with, but there were no obvious reasons to assume this to be the case. Although PND show little increase from baseline sessions, SS was able to produce more emotion words in each category with support within intervention tasks.

It was of note that SS was often energetic and eager to participate in intervention, so a lack of interest or motivation was not an issue. Two factors suggested that the task of producing emotion words was particularly difficult for him. First, these data were taken from the second semester of intervention. Given that he had previous exposure to the intervention, it might have been expected that his performance would be stronger. Second, his performance was relatively inconsistent with most productions being elicited. The fact that the task was difficult for him is reflected in both follow-up performance and the PND calculations.

AdK. AdK produced the lowest PND figures across four of the emotion categories (23% for *anger*, and 18% in each of the categories of *sadness*, *fear*, and *surprise*). It was of note that

although the PND for *fear* was low, AdK did produce the most *fear* words across all participants in a single session (31 words in intervention session 18) in this category. This session was surprising, given her general performance. It may have been the case that she had more familiarity with this word category than indicated by her baseline. It may have also been the case that the specific story lent itself to repetitions of this word (e.g., he was scared, and she was scared). AdK's highest PND was in the category of *happiness* (PND = 50%). This indicates that the intervention was effective in this category, but not substantially. This was not surprising, because it was expected that all participants had the greatest prior knowledge in this category. Percentages of non-overlapping data may represent more frequent repetitions of words in this category throughout intervention sessions because it was the most easily recognizable for her. In general, however, the task was relatively challenging for AdK, and that task difficulty contributed to her inconsistent productions of emotion words.

MK. MK was the youngest and lowest functioning participant examined in the current study. She showed the least initial production of emotion words, producing none in the baseline sessions. The scaffolding of the intervention helped her to practice and produce many emotion words during intervention sessions, but this production was not observed in follow-up sessions.

The PND calculations for MK indicated that intervention was effective for some categories and ineffective for others. She had the highest PND in any category, relative to the other participants, of 91% in the category of *anger*. This shows that intervention was highly effective in this category. It was also effective in the categories of *happiness* (PND = 78%) and *sadness* (PND = 65%), but not for *fear* (PND = 39%) or *surprise* (26%). These varied results suggest that she was making progress, but that the task was relatively difficult for her. Compared to the other participants, she had more to learn and likely required more support than

the others. This is reflected in her higher percentage of *imitated* productions of emotion words relative to the other participants. MK often needed to repeat an emotion word after the clinician said it, therefore requiring more support to understand and talk about the emotions.

MK frequently responded to questions such as, “How does this character feel?” with repetitions of “not happy” for all emotions with a negative valence. Only with modeling and prompting from the clinician was she able to produce more specific, accurate, or descriptive emotion words. This suggests that distinguishing between negative emotions was difficult for her. The fact that she made progress on a specific emotion word category, but not in others, was not surprising.

JS. This was JS’s second semester to go through the intervention program. JS had significant behavioral problems at the beginning of and throughout this round of intervention. She had great difficulties sitting in her chair or attending to activities. She was defiant and required maximum support to participate in any intervention activities. She ran from the therapy room several times. JS repeatedly expressed her dislike for intervention and for reading books. JS’s teachers also reported similar problem behaviors throughout the school day. This is likely because the tasks in intervention and the classroom were very difficult for her. Intervention had to be modified in order to meet her behavioral needs. The social communication intervention with JS focused on identifying and discussing pictures of emotional expressions on faces. Because therapy activities were so different from the intervention program described in this study, data on her emotion-word productions were not included.

Valence Agreement

For all participants, valence agreement was consistently between 90% and 100%. This was not surprising. It shows that the participants did not have difficulties distinguishing between

positive and negative emotions, and that they likely came in with a fairly strong understanding of this difference. As suggested above, MK had more difficulty with valence than the other participants, but still performed above 90%.

Types of Productions

Though results were varied for each session and participant, it was clear that the majority of productions of emotion words were elicited in some way. This may explain why the graphs show significantly more productions in intervention sessions than in baseline and follow-up sessions. All participants required the support of questions, cues (pictures, written words, phonological or closed cues), or repetitions of emotion words in order to use them during intervention. Even at the end of intervention, most participants did not use many emotion words without support from the clinician.

Lack of generalization in follow-up sessions might be explained by a number of reasons. It is likely that the participants needed more time in order to learn the emotion words and use them spontaneously. Children were seen two times a week for 20-minute sessions to fit treatment into their school schedules. They may have benefitted from more therapy time (longer sessions or more frequent sessions) to provide additional support for learning the emotion words.

Another potential factor in the lack of generalization was that the children seemed to become tired of the frog stories used in baseline and follow-up sessions. This likely caused them to not provide as much detail while re-telling the stories. During these tasks, some children expressed frustration at repeating the stories. They wanted to rush through the stories as quickly as possible, and required prompting before the task in order to give their best effort to tell the stories. This would suggest, perhaps, that the follow-up session data were not as representative of the participants' abilities as they might have been.

Another speculated reason for lack of generalization to story retell is the type of support given by the clinician for emotion word production. It is possible that the participants would have generalized more if the clinician had provided an increased number of cues or questions to provide structured opportunities to use emotion words. It is also possible that some participants would respond better to cues than to questions. Though all participants required some form of support to produce emotion words, it could be speculated that each participant responded differently to different kinds of prompts. Increasing prompts from the clinician or tailoring the kinds of prompts to each participant's preferences would likely increase emotion word productions during intervention sessions; perhaps this increase in production throughout the intervention would lead to increased generalization.

Conclusions

This portion of the larger study was designed to look at the emotion word productions within the categories of *happiness*, *anger*, *sadness*, *fear*, and *surprise* in school-aged children with LI. Results suggest that several of the children who participated responded well during the intervention. The majority of the emotion word productions occurred within the story intervention tasks, reading and discussing the story. This was the most highly supported activity of all the intervention tasks. In these activities the clinician asked questions and gave cues in order to facilitate discussion of the emotion words. This supports the finding that these children still need the scaffolding of intervention to produce a higher number of emotion words. According to PND calculations that represented the percentage of sessions in which a child produced more emotion words than the highest point in baseline sessions, the intervention was moderately effective for AIK, JRS, and MK. These data also suggested that the intervention was less effective for SS and AdK.

Limitations

There are several potential limitations to this study. First, the number of productions for each emotion in each session may have been differentially influenced by the specific stimulus used to elicit the emotions. The intervention was set up to review and enact one story at a time. Different stories highlighted different emotions. Although there was an attempt to balance presentation of the various emotions, this was not systematically controlled. Additionally, the number of times a specific emotion was modeled by the clinician was not controlled. The clinician and participants would each focus on one story across several sessions, meaning that there might be many productions in one or two emotion categories and none in other categories; thus, no productions in one category in a specific session might not necessarily represent a lack of understanding, but rather a lack of opportunity to use the word.

Another potential limitation was the frog stories used in baseline and follow-up sessions. As previously discussed, some children became tired of the frog stories. Their lack of engagement in follow-up tasks in particular may suggest that the stimuli used for baseline and follow-up were not as indicative of the participants' abilities as hoped.

It is also likely that length and frequency of the intervention program and length of individual intervention sessions were limiting factors. Research has suggested that length of intervention is a factor in positive outcomes (Law, Garrett, & Nye, 2004). As discussed previously, the children may have benefitted from longer sessions or more frequent sessions to provide additional support for learning the emotion words. Considering the current context of a speech pathologist's caseload and schedule in a school setting, it was difficult to provide more intervention time.

The impact of the clinician could also be an influential factor. From session to session, it is possible that the clinician would provide varied numbers of prompts and opportunities to practice emotion words. In order to address needs of individual children and to maintain the naturalness of the intervention, the individual number of prompts for specific emotions was not controlled. Differences in the number of prompts may have impacted the production of the various emotion words.

Directions for Future Research

There are few published studies that examine the results of social communication interventions for school-aged children with LI (Gerber et al., 2012). There are even fewer that specifically examine data related to emotional intelligence. Results in this study were varied, but showed promise for future interventions to address emotion words in a story enactment framework. Additional research should be conducted in this area with increased control of the stories used during interventions used to highlight specific emotions. In this study, stories were not strictly reviewed for the categories of emotions highlighted in them, which may have resulted in some emotion categories receiving more explicit teaching than others. Future studies that control the stories used for discussion and enactment could provide a balanced focus on the emotion word categories presented.

Future studies may also benefit from different baseline and follow-up tasks. There were limitations with the frog stories, especially after repetitions of the program across semesters. Several children reported that they were tired of these stories. Toward the end of the intervention and in baseline some of the children hurried to finish the stories as quickly as possible. Thus, the task of retelling these stories may not have been accurately representative of the children's knowledge. Another similarly unstructured task might be more effective in

demonstrating the children's knowledge of emotion words, both before and after the intervention program.

It would be beneficial to understand more about the types of elicitation that the children needed over the course of the intervention to produce the emotion words. Coded production types in this study included *spontaneous*, *cued*, *imitated*, and *in response to a question*. It could be reasoned that if the child produced increasing numbers of spontaneous productions throughout the intervention then he or she was learning the words well enough to use them without prompting (but still within the scaffolding of the intervention). Looking not only at the total emotion word productions, but also more closely at the types of productions and elicitations may provide helpful insight. This analysis may highlight the most effective kinds of prompts to use to structure the intervention, and may also provide another useful quantitative measure of emotion learning.

Summary

Results for this social communication intervention were varied but still show promising improvements for these children with LI. Percentage of non-overlapping data calculations showed that the intervention was moderately effective for three of the five participants and that all participants made improvements in at least one emotion word category. The results suggest that children with LI do have difficulties in the area of emotional intelligence, but that within the structure of a social communication intervention, they are able to learn and use words in different emotion categories. Though further research is needed to improve baseline and follow-up tasks, this research suggested that the story enactment intervention may be an effective tool in helping children with LI improve social communication skills in the domain of emotional intelligence.

References

- Adams, C. (2001). Clinical diagnostic and intervention studies of children with semantic–pragmatic language disorder. *International Journal of Language & Communication Disorders, 36*(3), 289-305. doi: 10.1080/13682820110055161
- Adams, C. (2005). Social communication intervention for school-age children: Rationale and description. *Seminars in Speech and Language, 26*(3), 181-188. doi: 10.1055/s-2005-917123
- Adams, C., Lloyd, J., Aldred, C., & Baxendale, J. (2006). Exploring the effects of communication intervention for developmental pragmatic language impairments: A signal-generation study. *International Journal of Language & Communication Disorders, 41*, 41-65. doi: 10.1080/13693780500179793
- Adams, C., Lockton, E., Freed, J., Gaile, J., Earl, G., McBean, K., . . . Law, J. (2012). The Social Communication Intervention Project: A randomized controlled trial of the effectiveness of speech and language therapy for school-age children who have pragmatic and social communication problems with or without autism spectrum disorder. *International Journal of Language & Communication Disorders, 47*, 233-244. doi: 10.1111/j.1460-6984.2011.00146.x
- Adams, C., Lockton, E., Gaile, J., Earl, G., & Freed, J. (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 & Communication Disorders, 47*, 245-256. doi: 10.1111/j.1460-6984.2012.00147.x

- American Psychiatric Association. (2013). Neurodevelopmental disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, D.C.; Author. doi: 10.1176/appi.books.9780890425596
- Bedrosian, J., & Willis, T. (1987). Effects of treatment on the topic performance of a school-age child. *Language, Speech, and Hearing Services in Schools, 18*, 158-167.
- Bishop, D. (2003). *The Children's Communication Checklist Version 2 (CCC-2)*. London, England: Psychological Corporation.
- Bishop, D., Chan, J., Adams, C., Hartley, J., & Weir, F. (2000). Conversational responsiveness in specific language impairment: Evidence of disproportionate pragmatic difficulties in a subset of children. *Development and Psychopathology, 12*, 177-199.
- Brinton, B., & Fujiki, M. (1999). Social interactional behaviors of children with specific language impairment. *Topics in Language Disorders, 19*(2), 49-69.
- Brinton, B., & Fujiki, M. (2014). Social and affective factors in children with language impairment. In E. R. Silliman, C. A. Stone, B. J. Ehren, & K. Apel (Eds.), *Handbook of language and literacy: Development and disorders* (2nd ed.) (173-189). New York, NY: Guilford Press.
- 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.
- Brinton, B., Fujiki, M., & Powell, J. M. (1997). The ability of children with language impairment to manipulate topic in a structured task. *Language, Speech and Hearing Services in Schools, 28*, 3-11.

- Brinton, B., Fujiki, M., Spencer, J., & Robinson, L. (1997). The ability of children with specific language impairment to access and participate in an ongoing interaction. *Journal of Speech, Language & Hearing Research, 40*, 1011-1025.
- 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 & Hearing Research, 50*, 798-811.
- Craig, H., & Washington, J. (1993). Access behaviors of children with specific language impairment. *Journal of Speech & Hearing Research, 36*, 322-337.
- Denham, S. E. (1998). *Emotional development in young children*. New York, NY: The Guilford Press.
- Dollaghan, C., & Kaston, N. (1986). A comprehension monitoring program for language-impaired children. *Journal of Speech and Hearing Disorders, 51*, 264-271.
- Ford, J. A., & Milosky, L. M. (2003). Inferring emotional reactions in social situations: Differences in children with language impairment. *Journal of Speech, Language, and Hearing Research, 46*, 21-30.
- Fujiki, M., Brinton, B., & Clarke, D. (2002). Emotion regulation in children with specific language impairment. *Language, Speech & Hearing Services in Schools, 33*(2), 102-111.
- Fujiki, M., Brinton, B., & Todd, C. (1996). Social skills of children with specific language impairment. *Language, Speech & Hearing Services in Schools, 27*, 195-202.
- Fujiki, M., Spackman, M. P., Brinton, B., & Hall, A. (2004). The relationship of language and emotion regulation skills to reticence in children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 47*(3), 637-646.

- 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*(3), 330-345. doi:10.1080/13682820701507377
- Gallagher, T. (1990). Clinical pragmatics: Expectations and realizations. *Journal of Speech-Language Pathology and Audiology, 14*, 3-6.
- Gerber, S., Brice, A., Capone, N., Fujiki, M., & Timler, G. (2012). Language use in social interactions of school-age children with language impairments: An evidence-based systematic review of treatment. *Language, Speech & Hearing Services in Schools, 43*, 235-249. doi: 10.1044/0161-1461(2011/10-0047)
- Gertner, B. L., & Rice, M. L. (1994). Influence of communicative competence on peer preferences in a preschool classroom. *Journal of Speech & Hearing Research, 37*, 913-923.
- Gibbons, E. (2014). *The accurate productions of emotion words during a social communication intervention in children with language impairment*. (Master's thesis). Brigham Young University ScholarsArchive. (3837).
- Guerra, J. (2014). *The efficacy of social communication intervention on teacher report of sociability for children with language impairment*. (Master's thesis). Brigham Young University ScholarsArchive (4132).
- Hadley, P. A., & Rice, M. L. (1991). Conversational responsiveness of speech- and language-impaired preschoolers. *Journal of Speech and Hearing Research, 34*, 1308-1317.

- Harris, J. L. (2011). *The effects of a literature-based emotion recognition program on teacher report of sociability withdrawal for six children with social communication difficulties*. (Master's thesis). Brigham Young University ScholarsArchive (2811).
- Hart, K. I., Fujiki, M., Brinton, B., & Hart, C. H. (2004). The relationship between social behavior and severity of language impairment. *Journal of Speech, Language & Hearing Research, 47*, 647-662. doi: 10.1044/1092-4388(2004/050)
- 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 & Communication Disorders, 40*, 431-454. doi: 10.1080/13682820500071484
- Jerome, A. C., Fujiki, M., Brinton, B., & James, S. L. (2002). Self-esteem in children with specific language impairment. *Journal of Speech, Language & Hearing Research, 45*, 700-714.
- Klecan-Aker, J. S. (1993). A treatment programme for improving story-telling ability: A case study. *Child Language Teaching and Therapy, 9*(2), 105-115.
- Law, J., Garrett, Z., & Nye, C. (2004). The efficacy of treatment for children with developmental speech and language delay/disorder: A meta-analysis. *Journal of Speech Language and Hearing Research, 47*(4), 924-943. doi: 10.1044/1092-4388(2004/069)
- 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 & Hearing Research, 48*, 868-883. doi: 10.1044/1092-4388(2005/060)

- Mansfield, R. (2013). *Outcomes of an emotion word intervention for children with social communication impairments*. (Master's thesis). Brigham Young University ScholarsArchive (3848).
- Marton, K., Abramoff, B., & Rosenzweig, S. (2005). Social cognition and language in children with specific language impairment (SLI). *Journal of Communication Disorders*, 38, 143-162. doi: <http://dx.doi.org.erl.lib.byu.edu/10.1016/j.jcomdis.2004.06.003>
- Mayer, M. (1967-1975). *Boy, dog, frog books*. New York, NY: Dial Books for Young Readers.
- Merkenschlager, A., Amorosa, H., Kiefl, H., & Martinius, J. (2012). Recognition of face identity and emotion in expressive specific language impairment. *Folia Phoniatrica et Logopaedica*, 64(2), 73-79.
- Merrison, S., & Merrison, A. J. (2005). Repair in speech and language therapy interaction: Investigating pragmatic language impairment of children. *Child Language Teaching and Therapy*, 21, 191-211.
- Olswang, L. B., Coggins, T. E., & Timler, G. R. (2000). Outcome measures for school-age children with social communication problems. *Topics in Language Disorders*, 21(4), 40-73.
- Redmond, S. M., & Rice, M. L. (1998). The socioemotional behaviors of children with SLI. *Journal of Speech, Language & Hearing Research*, 41, 688-700.
- Richardson, K., & Klecan-Aker, J. S. (2000). Teaching pragmatics to language-learning disabled children: A treatment outcome study. *Child Language Teaching and Therapy*, 16(1), 23-42.
- Rice, M., Sell, M., & Hadley, P. (1991) Social interactions of speech- and language-impaired children. *Journal of Speech and Hearing Research*, 34, 1299-1307.

- Scruggs, T. E., & Mastropieri, M. A. (1994). The effectiveness of generalization training: A quantitative synthesis of single subject research. *Advances in Learning and Behavioral Disabilities, 8*, 259–280.
- Semel, E., Wiig, E. G., Secord, W. (2013). *Clinical Evaluation of Language Fundamentals (CELF-5)* (5th ed.). Minneapolis, MN: Pearson Assessments.
- Spackman, M. P., Fujiki, M., & Brinton, B. (2006). Understanding emotions in context: The effects of language impairment on children's ability to infer emotional reactions. *International Journal of Language & Communication Disorders, 41*(2), 173-188. doi: 10.1080/13682820500224091
- Stanton-Chapman, T. L., Denning, C. B., & Jamison, K. R. (2008). Exploring the effects of a social communication intervention for improving requests and word diversity in preschoolers with disabilities. *Psychology in the Schools, 45*, 644-664. doi: 10.1002/pits.20315
- Stanton-Chapman, T. L., Denning, C. B., & Jamison, K. R. (2012). Communication skill building in young children with and without disabilities in a preschool classroom. *The Journal of Special Education, 46*(2), 78-93. doi: 10.1177/0022466910378044
- Stanton-Chapman, T. L., Kaiser, A. P., Vijay, P., & Chapman, C. (2008). A multicomponent intervention to increase peer-directed communication in head start children. *Journal of Early Intervention, 30*(3), 188-212.
- Stanton-Chapman, T. L., & Snell, M. E. (2011). Promoting turn-taking skills in preschool children with disabilities: The effects of a peer-based social communication intervention. *Early Childhood Research Quarterly, 26*(3), 303-319. doi: <http://dx.doi.org.erl.lib.byu.edu/10.1016/j.ecresq.2010.11.002>

- Stanton-Chapman, T. L., Walker, V., & Jamison, K. R. (2014). Building social competence in preschool: The effects of a social skills intervention targeting children enrolled in Head Start. *Journal of Early Childhood Teacher Education, 35*(2), 185-200. doi: 10.1080/10901027.2013.874385
- Stevens, L. J., & Bliss, L. S. (1995). Conflict resolution abilities of children with specific language impairment and children with normal language. *Journal of Speech & Hearing Research, 38*, 599-611.
- Swanson, L. A., Fey, M. E., Mills, C. E., & Hood, L. S. (2005). Use of narrative-based language intervention with children who have specific language impairment. *American Journal of Speech-Language Pathology, 14*, 131-141.
- Timler, G. R. (2008). Social knowledge in children with language impairments: Examination of strategies, predicted consequences, and goals in peer conflict situations. *Clinical Linguistics & Phonetics, 22*, 741-763. doi: 10.1080/02699200802212470

APPENDIX A: Annotated Bibliography

Adams, C. (2001). Clinical diagnostic and intervention studies of children with semantic–pragmatic language disorder. *International Journal of Language & Communication Disorders*, 36(3), 289-305. doi: 10.1080/13682820110055161

Summary: Adams identified two children diagnosed with pragmatic language impairment (PLI). By examining the language abilities of these children in a case study format, she attempted to determine whether the label of semantic-pragmatic language disorder (SPLD) or PLI would be most appropriate. The purpose of describing these labels was to more completely understand the communication of individuals with SPLD and PLI, and to be able to provide the most effective intervention for them.

Conversational samples for each child (ages 7 and 10) were taken and analyzed before and after 10 weeks of individualized intervention for pragmatic skills such as conciseness and prosody to convey meaning, and for semantic skills such as word-finding. Results did show improvements in pragmatic and semantic skills, though few were significant. Because the children's language abilities and the interventions to treat them were so different, even having the same diagnosis, Adams questioned the need for the label of SPLD. Adams determined that conversation analysis and narrative may serve as good measures of improvement in language following language intervention for school-age children with PLI.

Relevance: Adam's study showed that with carefully targeted intervention (like the intervention in this thesis), it was possible to measure changes in pragmatic abilities in children with language impairment. Her study served as a foundation for further studies of pragmatic language intervention outcomes and future randomized control design studies.

Adams, C. (2005). Social communication intervention for school-age children: Rationale and description. *Seminars in Speech and Language*, 26(3), 181-188. doi: 10.1055/s-2005-917123

Summary: Adams presents a rationale and framework for language intervention for children with social communication impairments. She describes social communication as the developmental interaction between social cognition, interaction, pragmatics, and language processing. Adams describes a framework for intervention that targets the development of these four areas. One of the central elements of the intervention is social adaptation, which includes recognition of the role of the child's common interactional partners and adaptation of school curriculum and communication environments. Other elements of the framework included social flexibility, metapragmatics, and language processing.

Using this social communication intervention framework, Adams and colleagues conducted a series of single case studies in which they administered therapy to six children with PLI between the ages of 6 and 10. Though described in more detail in a later article (Adams, Lloyd, Aldred, & Baxendale, 2006), Adams included observations from one of the participants. She reported that after 24 sessions of therapy, the child made gains in formal language test scores and in conversational skills that generalized to home and school environments.

Relevance: Adams modeled a preliminary framework for social communication interventions that addresses many of the principles addressed in the current intervention in this study. It showed promising results for at least one child with PLI, who also made gains in the form and content of language. This framework served as a springboard for continued research on the effects of social communication interventions such as this thesis.

Adams, C., Lloyd, J., Aldred, C., & Baxendale, J. (2006). Exploring the effects of communication intervention for developmental pragmatic language impairments: A signal-generation study. *International Journal of Language & Communication Disorders, 41*, 41-65. doi: 10.1080/13693780500179793

Summary: Based on the social communication intervention framework by Adams (Adams, 2005), Adams, Lloyd, Aldred, and Baxendale (2006) administered an 8-week intervention program to six children between 6;0 and 9;11 with PLI in an educational setting. Intervention was set up in a series case study design in which three children received the intervention for one term and the other three children received it in the second term. Measures of inferential comprehension, narrative, sentence formulation, sentence recall skills, and conversational pragmatic behaviors were taken before and after intervention. Following the framework, intervention focused on language pragmatics, social interaction and cognition. No language processing goals were addressed. The 8-week intervention consisted of three sessions per week, each lasting one hour. Intervention activities included games to focus on interactional communication and advice to promote successful communication in other settings.

All children showed changes in communication behaviors in measures of conversation, and most also showed improvement in standardized language measures. Teachers and parents also reported noticeable improvements in communication skills and in engagement in classroom curriculum.

Relevance: The case study showed changes in communicative behaviors in all six children who participated in the social communication intervention; though language processing was not directly addressed, most of the children also made improvements that showed on standardized measures of language. This case study showed preliminary evidence that social communication interventions do benefit children with PLI. This preliminary evidence serves as a foundation for the current thesis.

Adams, C., Lockton, E., Freed, J., Gaile, J., Earl, G., McBean, K., . . . Law, J. (2012). The Social Communication Intervention Project: a randomized controlled trial of the effectiveness of speech and language therapy for school-age children who have pragmatic and social communication problems with or without autism spectrum disorder. *International Journal of Language & Communication Disorders, 47*, 233-244. doi: 10.1111/j.1460-6984.2011.00146.x

Summary: Adams et al. developed a manualized social communication intervention (Adams, Lockton, Gaile, Earl, & Freed, 2012) in order to administer the intervention to children with and without autism spectrum disorder with pragmatic language problems. In a randomized controlled trial, 88 children between 5;11 and 10;8 who were already receiving speech and language services received the social communication intervention or treatment as usual.

Participants completed several measures before intervention, and then both immediately after and 6 months after the intervention. Those measures included structural language, narrative skills, parent-reported pragmatic functioning and social communication, teacher-rated classroom learning skills, and blind-rated perceptions conversational competence. The measures after the manualized intervention showed no significant increase in structural language or narrative ability. The children did make significant gains in all other measures of social communication and classroom learning.

Relevance: Adams et al. found that a social communication intervention administered in a systematic way to children with pragmatic language problems did improve their pragmatic language skills. The randomized control design, along with blind measures of conversational competence, support the evidence further. This study supported existing evidence that social communication interventions, like the one in this thesis, can help children improve social communication skills.

Adams, C., Lockton, E., Gaile, J., Earl, G., & Freed, J. (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 & Communication Disorders*, 47, 245-256. doi: 10.1111/j.1460-6984.2012.00147.x

Summary: Adams and her colleagues developed a manual for a systematic social communication intervention to be administered in a randomized control trial design. The aims of developing this manual were to present the rationale, structure, and content of the intervention, to look at other factors associated with implementing a social communication intervention in a mainstream school setting, and to determine the fidelity of the treatment. They discussed a mapping procedure for all of the elements of the intervention and for individualizing the intervention. They considered the factors involved in implementing the intervention in a school setting by looking at a school-therapy alliance checklist. After the administration of the intervention by a research speech-language pathologist, researchers were able to measure differences between delivered and planned treatment. They found that the manualized intervention did allow for individualization while maintaining fidelity. Parents and speech therapists were involved in treatment planning, and rated the intervention highly for addressing social communication goals.

Relevance: In order for Adams and colleagues to conduct the randomized control design, it was necessary to develop a system for administering a consistent intervention with high fidelity. As previously summarized, these two studies together provide more evidence that social communication interventions like the one used in the current study can help children improve social communication skills.

American Psychiatric Association. (2013). Neurodevelopmental disorders. *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, D.C.; Author. doi: 10.1176/appi.books.9780890425596

Summary: The DSM 5 is the manual containing all current classifications of mental and developmental disorders recognized by health professionals in the United States. It provides a basic framework for assessment. The section on neurodevelopmental disorders covers all conditions with an onset during the developmental period, including intellectual disabilities, learning disorders, communication disorders, motor disorders, and others. The section under communication disorders includes language disorders and social communication disorders. There is some overlap between the two disorders. Language disorder is classified by a persistent difficulties in language across all modalities, and is not secondary to hearing or intellectual disability. Social or pragmatic communication disorders are classified by persistent difficulties with the use of language for social purposes, also not attributable to intellectual delay.

Relevance: The DSM-5 is the best source for information on defining and classifying disorders. It provides guidelines for both language disorder and social communication disorder.

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

Summary: Bedrosian and Willis developed intervention goals for a 5-year-old male with language disorder. The subject had particular difficulties with topic initiations; his initiations were limited to only things in his current context, the here-and-now. The purpose of this study was to measure the efficacy of a treatment of topic performance for this child with language disorder. The authors used assessment results to develop the treatment goals that were intended to increase the frequency of topic initiations. Following treatment, Bedrosian and Willis found that the subject increased the variety of topics that he initiated.

Relevance: This study showed relatively early on that children could make overall language improvements through working on functional communication skills. It supported the effectiveness of pragmatic interventions focusing on specific social communication skills. With somewhat limited baseline data, this was more of a case study design, so further research is needed to provide more generalized support for social communication interventions.

Bishop, D. (2003). *The Children's Communication Checklist version 2 (CCC-2)*. London, England: Psychological Corporation.

Summary: This is a norm-referenced measure of the communication abilities of children between 4;0 and 16;11. It was developed to be completed by a child's caregiver, based on research by Dr. Dorothy Bishop. It is a 70-item questionnaire that allows the caregiver to rate the child's speech, vocabulary, sentence structure, and social communication skills. It serves as a tool to screen for general language problems and help identify children with language impairments. It may also indicate the need for further more detailed assessment. The CCC contains subscales examining speech, syntax, semantics, coherence, initiation, scripted language, context, nonverbal communication, social relations, and interests. It is scored and norm-referenced to help determine the needs of the child relative to the typical population.

Relevance: This measure offers a more complete view of children's communication skills from the perspective of people who know them well. This measure was used to look at

each child's communication skills in this study. Their classroom teachers completed the questionnaires at the beginning of the semester and at the end of the semester.

Bishop, D., Chan, J., Adams, C., Hartley, J., & Weir, F. (2000). Conversational responsiveness in specific language impairment: Evidence of disproportionate pragmatic difficulties in a subset of children. *Development and Psychopathology, 12*, 177-199.

Summary: Bishop et al. selected 18 children with SLI from ages 6 to 8 and compared them to 9 chronological age controls (children of the same chronological age and similar nonverbal abilities) and 9 language level controls (younger children with similar language abilities). Half of the children with SLI were identified as having pragmatic language difficulties (PLI group) and the other half were identified as children with more standard SLI, having syntactic and semantic difficulties (SLI-T). These difficulties were observed by teachers on a teacher rating scale. The researchers looked at semistructured conversational tasks and measured likelihood to respond to adult solicitations, nonverbal responses, and quality of response. They found that all children (control and SLI groups) usually responded to adult solicitations in conversation, but children in the PLI group were more likely to not respond. These children also used very little nonverbal responding like nodding, and were more likely to give pragmatically inappropriate responses.

Relevance: This study supports the idea that the needs of children with SLI are broader than originally defined. These children that are language-impaired have deficits in conversation and social communication that cannot be attributed solely to difficulties with grammar and vocabulary. The study in this thesis is geared toward showing that children with SLI have pragmatic problems.

Brinton, B., & Fujiki, M. (1999). Social interactional behaviors of children with specific language impairment. *Topics in Language Disorders, 19*(2), 49-69.

Summary: This article provides an overview of several previous studies of the interactional skills of children with LI. It also includes a detailed look at six children with LI. The authors looked specifically at teacher ratings of social skills and at the children's ratings of their own loneliness and quantity of peer contacts. In order to describe their communication skills and come up with effective intervention methods, they looked at these six children in interactions in which they had to access a conversation, negotiate, and cooperate.

The detailed study of the six children with LI replicated the results of previous studies: children with LI tend to have social problems. These problems were reflected in rating scales and/or interactions. Teachers rated the six children as having more internalizing behaviors, or acting sad or lonely. All children struggled with some aspect of social language tasks and none played a dominant role in a triad play-setting.

Relevance: This study confirmed that language and social competency are intertwined in many ways; this restates the importance of addressing social communication in intervention with children who have LI. Even with a small sample size, they showed that children with LI have a wide range of behaviors and abilities that must be addressed to help them succeed. This thesis is an effort to look at results of socially-focused interventions for these kinds of children.

Brinton, B., & Fujiki, M. (2014). Social and affective factors in children with language impairment. In E. R. Silliman, C. A. Stone, B. J. Ehren, & K. Apel (Eds.), *Handbook of language and literacy: Development and disorders* (2nd ed.), 173-189. New York, NY: Guilford Press.

Summary: In this chapter, Brinton and Fujiki discuss definitional issues surrounding children with LI and pragmatic or social communication difficulties. They suggest that all of the interactional difficulties that children with LI have cannot fit under the definition of pragmatics, which is a linguistic component like semantics or syntax. Rather, a term like social communication includes other non-linguistic behaviors that are important to interaction, including theory of mind and emotional intelligence. When clinicians can address social communication issues, rather than solely pragmatic issues, intervention for children with LI may be more effective. They describe the interactional behaviors of these individuals, and discuss how this applies to treating these children and children with PLI and ASD.

Relevance: Brinton and Fujiki provide information on the need for social communication interventions for children with LI. This thesis is based on many of the same observations and theories presented in this chapter.

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.

Summary: This study examined the ability of six children with LI to negotiate and work to make mutual decisions in a triadic interaction. The children were between the ages of 8;10 and 12;5. The study also included six chronological age-matched peers and six language functioning-matched peers. The researchers observed 18 triads which included one target child and two partners. In each of the triads, the children received tokens and were instructed that they could combine their tokens to receive a group prize at the end. In triads with the language-matched peers and the age-matched peers, all members of the triad participated and contributed to the decision-making process. Although children with LI did not necessarily talk less than their peers during the negotiation, they did contribute a significantly smaller proportion of the negotiation strategies used during the interaction. Their strategies were also developmentally lower than the strategies used by the other groups.

Relevance: Children with LI lack the social communication abilities necessary to negotiate or help make communal decisions. This provides further specific evidence that children with LI have social communication problems. Negotiation, problem-solving, and decision-making skills could be addressed in intervention with these children. These are important social communication skills, like emotional intelligence addressed in this thesis.

Brinton, B., Fujiki, M., & Powell, J. (1997). The ability of children with language impairment to manipulate topic in a structured task. *Language, Speech & Hearing Services in Schools*, 28, 3-11.

Summary: This study investigated the topic development and maintenance abilities of 10 children with LI, 10 chronological age-matched peers, and 10 language functioning-matched (younger) peers. An adult investigator presented two topics to each of the children: one about an object and one about an event. Three objects were presented, and commented on verbally. Three more topics were introduced about events only verbally. If the child responded, the investigator only made minimal comments without elaboration. The examiners analyzed whether child responses were to maintain a topic or introduce a new one, and whether the response was appropriate or not.

These researchers found that some children in each group were reticent and did not participate much in the interaction with the adult. Most children did appropriately respond to the topic prompts, but children with LI produced more inappropriate responses than children in the other two groups. Children with LI also produced fewer appropriate responses to topic prompts that were only verbal.

Relevance: Topic maintenance and appropriate introduction of new topics is an important social communication skill that children with LI struggle with. This study provides further evidence that these children do need extra support to successfully interact with others. Addressing this and other social communication skills in intervention (such as those addressed in this thesis) with children with LI will be effective in helping them communicate.

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

Summary: This study investigated the ability of six children with LI to access, or enter, an ongoing interaction between two of their peers. The children were between the ages of 8;10 and 12;5. The study also included six children who were chronologically age-matched and six children who were matched for language functioning. They used different triads to compare the access behaviors and abilities of the children with LI to their age- and language-matched peers. In the interactions, two partners entered the room and began playing with a toy together. The target child was brought into the room and left without any support to access the interaction. Two of the six children with LI did not access the interaction at all, and the others required varying amounts of time to access. Once they did access, the children with LI talked less than their peers from both groups and were addressed significantly less. They also collaborated less with their peers.

Relevance: This study suggests that children with LI have difficulties in interaction, and specifically with joining an interaction already in progress. This highlights another domain of interactional and social communication difficulties experienced by children with LI.

Brinton, B., Robinson, L., & Fujiki, M. (2004). Description of a program for social language intervention: "If you can have a conversation, you can have a relationship." *Language, Speech & Hearing Services in Schools, 35*, 283-290.

Summary: This study is a clinical exchange that describes an individualized social language intervention for one adolescent male named Larry. The intervention was designed to

help him increase his conversation skill by focusing on increasing awareness of listener needs and balancing the exchange of conversational turns. The researchers developed the conversation game that the clinician played with Larry. This game provided some concrete strategies to help him navigate the social landscape of conversation and social interactions in general. During clinic sessions he also practiced identifying character's emotions from video clips. Larry was observed to improve in conversation in the clinic, home, and school setting (according to clinician, parent, and client report). After two years of intervention, at age 16, he consciously used the conversation strategies, but still reverted back to old habits in demanding situations.

Relevance: The results of Larry's intervention provide an insight into the pervasive nature of LI and its effect on quality of life. Larry worked on some similar social communication skills that transferred to conversation after much practice. This suggests that although LI will continue to impact this study's participants, working on social communication skills such as these will help them have more academic and social success.

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 & Hearing Research, 50*, 798-811.

Summary: In this study, researchers examined the ability of 19 children with LI and 19 of their typically developing peers to judge when emotions should be hidden, or dissembled, according to social display rules. The children ranged in age from 7;9 to 10;10. Each child was presented with 10 scenarios involving the character Chris; in these scenarios, Chris experienced emotions that should be dissembled for socially appropriate rule of display. An example of this type of scenario included Chris receiving a large piece of cake from his favorite uncle that tasted disgusting. The task was difficult for many children, and the two groups did not significantly differ in their perceptions of social display rules. However, children with LI did indicate that emotions should be dissembled significantly less frequently than their peers. This suggests that children with LI did not understand the impact of displaying emotion in the same way that typically developing children do. This points to a delayed understanding of emotion.

Relevance: This study suggests that children with LI have problems with emotional understanding. These children lack understanding of how displaying emotions may affect relationships. The study in this thesis is geared toward emotional intelligence and discussion of how emotion affects relationships and experience.

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

Summary: 38 children participated in this study designed to compare the access behaviors of children with LI to those of their typically language age-matched and chronological age-matched developing peers. There were 5 target children with LI, and 8 typically developing children (4 age-matched and 4 language-matched) that served as controls. 25 other typical children participated as partners for triadic interactions. The rest of the children were the conversational partners. The children with LI and their age-matched peers were 7 and 8, and the

language similar controls were 3 and 4. For the interactions, two partners were led into a room to play with blocks. The subject child would enter in later and attempt to access the interaction without help from the examiner.

Three of the five children with SLI did not access the interactions. Observations suggested that these three children appeared to know that they were supposed to access, but did not. The two that did access did not use linguistic forms to access that were similar to those used by their typical language peers.

Relevance: Children with LI are less able to access ongoing interactions, and are therefore less able have successful social interactions. In this light, addressing more than linguistic factors in treatment of children with LI is important.

Creusere, M., Alt, M., & 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: [http://dx.doi.org.erl.lib.byu.edu/10.1016/S0021-9924\(03\)00036-4](http://dx.doi.org.erl.lib.byu.edu/10.1016/S0021-9924(03)00036-4)

Summary: This study was designed to observe the ability of preschoolers with LI to recognize and identify emotions by vocal and facial cues. 52 children between the ages of 4;0 and 6;5 (26 with LI and 26 typically developing) were selected for the study. The participants were sampled from a variety of racial backgrounds. Their mothers had varying education levels. The children were asked to complete several affect discrimination tasks, including identifying the emotion given a facial cue and unfiltered (normal) speech, facial cue only, vocal cue only, and facial cue with filtered speech (sounds like someone is speaking while covering their mouth). They found an overall difference in the way children with LI interpreted emotional meaning. Their scores on these tasks were lower overall than those of their typical peers. The two groups, however, only really differed on tasks that involved facial expressions and unfiltered speech. This provided evidence that children with LI have difficulties interpreting vocal and facial cues relative to their peers.

Relevance: Being able to recognize the physical expression of emotion is an important emotional intelligence skill. This provides further support that children with LI struggle with emotional intelligence. These difficulties affect their ability to interpret situations and to interact appropriately with others. Addressing these skills and other aspects of emotional intelligence will be important in helping them develop strong social communication skills.

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

Summary: In this book, Denham describes the importance of emotional competence (similar to emotional intelligence) and describes how children develop it. She provides important definitions of emotional competence and its components, including emotion expression, emotion understanding and emotion regulation. She highlighted the strong developmental link between social competence and emotional competence. Therefore, any breakdowns in emotional competence will likely lead to breakdowns in social competence.

Because of the developmental link, Denham emphasized the importance of teaching emotional competence skills in early intervention.

Relevance: Denham's definitions of emotional competence and its components serve as important guidelines for this study and many other similar studies. She argues that emotional competence and social competence are linked, which is an underlying research-supported theory behind this intervention. The children who participated in the study are the kinds of children that Denham would argue need this kind of intervention as early as possible.

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

Summary: This was an early study that investigated the social communication abilities of children with language impairment. The authors looked specifically at the children's 'functional verbal queries,' or requests for additional information when the stimulus was not understood. This required children to monitor their own comprehension and request further information when they did not understand. Four first-grade children with LI were selected to participate in a four to five week intervention; they met three times per week and focused on active listening skills. The participants were instructed on how to react to increasingly complex stimuli that were difficult to understand due to incomplete content, rapid speech, complex vocabulary, or background noise. Results showed that all children made immediate increases in their productions of functional verbal queries at the onset of the intervention, and that all children maintained improvements.

Relevance: This was an early study that looked into the efficacy of intervention for social communication skills with children with LI. The intervention yielded improvements for all of the participants. This successful social communication intervention helped move research forward surrounding social communication interventions like the one in this thesis.

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.

Summary: Ford and Milosky argued that anticipating, interpreting, and responding to peers' emotions is an important aspect of successful daily social discourse. To look at this in children with LI, they took a group of 24 kindergartners: 12 with LI and 12 age-matched peers. The participants looked at images of emotional expressions on faces in the categories of *happiness, anger, surprise, and sadness*, and identified them given a verbal label. Children were then presented with hypothetical scenarios in which they had to infer how a character. Stories were presented either verbally, visually, or both. All children in both groups were able to correctly label the facial expressions, but the children with LI had significantly more difficulty inferring the emotions. They also made more valence errors than their peers.

Relevance: The researchers suggested that overall language ability was related to ability to infer the emotions in suggested social contexts; the children with lower language ability did not do as well as inferring emotions, even though they could recognize them on faces. Ford and

Milosky suggested that these children have more social problems because of this. This provides further support for the notion that children with LI have deficits in emotional intelligence, and that it should be addressed in these children.

Ford, J., & Milosky, L. (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.

Summary: The purpose of this study was to examine with measures of time whether language-impaired preschoolers and their typical peers inferred emotions during discourse. 32 preschoolers were selected with 16 in each group. 36 three-sentence stories (18 experimental, 18 fillers) were presented visually and verbally, and the child was asked to determine the main emotion experienced by the character (happy, sad, or afraid). Following the presentations of the stories, a face appeared on the screen. In half the presentations, the face expression matched the story, and in the other half, the face did not match. Response times were measured for the participants. Children with typical language showed more evidence of online inferencing, reflected in significant differences in response time between matched and mismatched facial expressions. The children with LI did not show differences between labeling emotions in matched and mismatch conditions, suggesting that they did not make an emotional inference from the story. This suggests that preschool children do not make online emotion inferences.

Relevance: Making emotional inferences is a skill related to emotional intelligence. Even in children at a young age, it can be observed that children with LI struggle to infer emotions more than their peers. They connect this to social competence, saying decreased emotional intelligence is also related to low social competence. This thesis addresses social communication for children with LI based on results of studies like this one.

Fujiki, M., Brinton, B., & Clarke, D. (2002). Emotion regulation in children with specific language impairment. *Language, Speech & Hearing Services in Schools, 33*, 102-111.

Summary: The purpose of this study was to determine whether emotion regulation skills were a factor that should receive more research focus in the social problems of children with SLI. The researchers selected 41 children with SLI and 41 of their typical peers in two age groups (6-9 and 10-13) with equal numbers of boys and girls. In order to measure differences between groups (language, age, and gender), they looked at teacher ratings on the Emotion Regulation Checklist (ERC) of all of the participants. The ERC requires the rater, and in this case the teacher, to rate how well the child expresses emotions and modifies those expressions in socially appropriate ways. Overall, children with SLI had significantly lower scores, and especially older students and boys in both groups. Though this may reflect some teacher biases against children with communication disorders, this study suggested that emotion regulation may be a factor in the social problems that children with SLI experience.

Relevance: This study offered a preliminary and somewhat subjective look at the emotional intelligence of children with SLI. Results suggested that emotion regulation could be an important factor in these children's difficulties. Later studies examined this topic and

determined that emotion regulation (and emotional intelligence) are important factors in the social competence of children with SLI that should be addressed in treatment.

Fujiki, M., Brinton, B., Isaacson, T., & Summers, C. (2001). Social behaviors of children with language impairment on the playground: A pilot study. *Language, Speech & Hearing Services in Schools, 32*, 101-114.

Summary: This was a preliminary study to observe the behaviors of children with LI on the playground and compare them to the behaviors of their typically developing peers. Eight children with LI were identified by the school speech-language pathologist, including seven girls and one boy between the ages of 6;1 and 10;7. Typical peers who matched their age and gender were also selected. Each child was video-taped for a total of about one hour over four morning and afternoon recesses. The videos were segmented into 5-second clips, which were then coded for the behaviors observed in them. These were categorized into one of 37 subcategories, which were then categorized into one of six categories including peer interaction, adult interaction, withdrawal, aggression, victimization, and other. Researchers found that significant differences between groups were in the categories of peer interaction and withdrawal. Children with LI were significantly more withdrawn than the typical language children. Several of these children were excluded by their peers.

Relevance: This study provided further support for previous research indicating, by teacher report, that children with LI are significantly more withdrawn than their typical peers. This also supports the notion that children with LI have social problems, suggesting that treatment for these children needs to address more than syntactic or semantic language skills.

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 & Hearing Services in Schools, 44*, 3-19. doi: 10.1044/0161-1461(2012/11-103)

Summary: This was a preliminary study to help four children with LI increase the number of validating comments through a social communication intervention. Validating comments are comments directed to peers intended to encourage further interaction. They help children to access and participate in social interactions. The four children with LI that were selected were rated as having significant social problems. Over a course of ten weeks, the children had 40 intervention sessions, each lasting 15 minutes. Each week, the children participated in group instruction sessions in which they discussed interactive play behaviors, learned validating comments in story form, practiced them together, practiced them with typical peers, and watched and assessed their performance with their peers. Results showed that three of the four children made general increases in their use of validating comments in triadic peer interactions.

Relevance: This preliminary study showed promising results for a social communication intervention targeted to improve the social interactions in children with LI. Three of the four children were able to increase validating comments, and hopefully to increase overall social

competence. The hope for the study in this thesis is to similarly increase social competence by addressing another aspect of social communication.

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

Summary: This study was designed to compare the withdrawn behaviors and sociable behaviors of children with LI and typically developing children. The participants selected were 41 children with LI and 41 children with typical language. The groups consisted of both male and female children between the ages of 5 and 8 and 10 and 13 years. The participants' teachers completed the Teacher Behavior Rating Scale (TBRS), in which teachers rated a child's social skills. Withdrawal behaviors were divided into three categories: solitary-active withdrawal, reticence, and solitary-passive withdrawal. Sociable behaviors were divided into two categories: impulse control/likeability and prosocial behaviors. Sixty three percent of children with LI were rated low in two or more of these categories. The most significant difference was in reticent behavior. Teachers observed that the children with LI wanted to interact, but felt too fearful, anxious, or inept to do so. Teachers also rated boys with LI higher in the category of solitary-active withdrawal. Boys in both groups showed more passive withdrawal than girls. On sociable ratings, children with LI were rated significantly lower.

Relevance: This study provides further evidence for the social limitations of children with LI relative to their typical peers. Their lower language skills are correlated with lower social skills, and with higher levels of reticence. A failure to interact with their peers in a prosocial way may affect their academic and certainly social success in school. This indicates the importance of addressing social communication skills in children with LI.

Fujiki, M., Brinton, B., & Todd, C. (1996). Social skills of children with specific language impairment. *Language, Speech & Hearing Services in Schools, 27*, 195-202.

Summary: The purpose of this study was to examine the social behaviors of school-aged children with SLI, and to determine the quality of their social interactions. Nineteen children with SLI and 19 age-matched typically developing children between the ages of 8 and 12 were selected for the investigation. Researchers used the Social Skills Rating System-Teacher Form to measure social skills based on teacher observations. They also used an informal picture task in which children indicated with whom they interacted in a variety of tasks to measure the quantity of peer relationships. The authors also used the Williams and Asher Loneliness Questionnaire to determine the quality of the children's interactions. Results indicated that the children with SLI were rated as having lower social skills, more behavior problems, fewer peer relationships, and less satisfaction with their relationships.

Relevance: This study provided some early insight into the relationship between social skills, language, and behavior of children with SLI. It affirmed that these children do have social problems, according to teacher and self-ratings. The study encouraged further research into the specific social skills that caused their social problems and dissatisfaction.

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

Summary: This study was designed to investigate the relationship between language ability, emotion regulation, and reticent behavior in children with LI and in typical language peers. Researchers hoped to replicate past research, showing a correlation between these behaviors, and additionally hoped to determine the extent to which emotion regulation and language skills could be used to predict social reticence. Forty three children were selected for each group between the ages of 5 and 8 and 9 and 13. The Emotion Regulation Checklist (ERC) and Teacher Behavior Rating Scale (TBRS) was given to teachers in order to provide measures of emotion regulation and reticence for the children with and without LI. The Comprehensive Assessment of Spoken Language (CASL) was also administered to each child to provide a measure of overall language ability. Children with LI were rated lower by their teachers in categories of regulation and reticence, and also scored below one standard-deviation from the mean on the CASL. A regression analysis of all participant data showed that 43% of variance in reticence was accounted for by both emotion regulation and CASL scores (language ability). This finding showed that emotion regulation and language skills (both individually and combined) were powerful predictors of reticence.

Relevance: The findings that language and emotion regulation were powerful predictors of reticence was important. Children with LI are likely to struggle with the combination of language and emotional factors in interactions. This shows the future importance of addressing emotional regulation and emotional intelligence in general in treatment of children with LI.

Gallagher, T. (1990). Clinical pragmatics: Expectations and realizations. *Journal of Speech-Language Pathology and Audiology, 14*, 3-6.

Summary: Gallagher completed a clinical literature review discussing pragmatic language models. She argued that pragmatic models changed the way speech therapists thought about language disorders. Pragmatic language models attempt to characterize communication competence. They consider several types of knowledge, including language structural knowledge, presuppositional knowledge, and conversational knowledge. It focuses on language as it is used for communication purposes. She explains that this kind of model arose from frustration with purely semantic/syntactic models of language, and the notion that disorders were socially defined. Changes to intervention, assessment, and qualifications for services have occurred due to the impact of this model.

Relevance: Gallagher describes the change in language models used for intervention, and that models have shifted from purely semantic or syntactic to pragmatic since the 1970s. This model has allowed researchers to uncover other important facets of LI, with particular emphasis on social communication deficits and subsequent social problems. If language models had not developed in this direction over time, this important aspect of LI would be unacknowledged and untreated.

Gerber, S., Brice, A., Capone, N., Fujiki, M., & Timler, G. (2012). Language use in social interactions of school-age children with language impairments: An evidence-based systematic review of treatment. *Language, Speech & Hearing Services in Schools, 43*, 235-249. doi: 10.1044/0161-1461(2011/10-0047)

Summary: Because of the growing focus on social communication, ASHA established an ad hoc committee to conduct an evidence-based systematic review of studies published that present data about pragmatic language interventions. To be included in the review, articles had to have been published in a peer-reviewed journal in English between 1975 and 2008, contain original data to address one or more of 11 clinical questions, and describe intervention for children with LI between ages 5 and 11. Only 8 studies met the criteria. The methodology of each was analyzed and found to be exploratory in nature. Researchers concluded that more research is needed to determine the efficacy and appropriate methodology of social communication interventions. However, the committee noted that these studies provided preliminary evidence for and promise of success with social communication interventions in the future.

Relevance: This systematic review demonstrates the need to perform more research about the efficacy of social communication interventions. This thesis and the larger project of which it is a part examine the efficacy of a social communication intervention for school-aged children with LI.

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

Summary: This study examined the relationship between language ability and peer preferences of preschool-aged children. Thirty-one preschoolers were selected, including 9 normally developing children, 12 children with SLI, and 10 English-language learners. Each child was shown pictures of his or her classmates and asked to indicate which they would most (positive nomination) and least like (negative nomination) to play with. Results indicated that normally developing children received more positive nominations and were more liked by their peers. Children with SLI and English language learners were determined to be disliked or low impact (not necessarily liked or disliked). Language level was associated with nominations by classmates, and was the best predictor of peer popularity.

Relevance: This study showed that children who could not communicate effectively were less liked by their peers in a preschool classroom. This study examined children with SLI and children who were learning English. These findings suggested that low language abilities do affect children socially.

Gibbons, E. (2014). *The accurate productions of emotion words during a social communication intervention in children with language impairment*. (Master's Thesis). Brigham Young University ScholarsArchive. (3837).

Summary: Gibbons' thesis was part of a larger study that looked at a story enactment intervention. She looked at the emotion-word productions by three children with LI and measured accuracy across the 20 sessions and baseline and follow-up data. Intervention activities were focused on emotion identification and emotion inferences from stories. Results showed that two of the three participants increased accuracy of emotion word-productions and decreased the number of valence errors. The other participant showed no significant changes following intervention.

Relevance: The Gibbons' thesis was a pilot study for the intervention in this thesis. The results were promising and suggested the need for continued research in this area. A more sophisticated design and different therapy activities were used in this current study in an effort to improve the efficacy of the social communication intervention.

Hadley, P. A., & Rice, M. L. (1991). Conversational responsiveness of speech- and language-impaired preschoolers. *Journal of Speech and Hearing Research, 34*, 1308-1317.

Summary: In an integrated classroom setting, this study looked at conversational responsiveness of children between the ages of 3 and 5 years. There were 18 children total: 4 with LI, 4 with speech impairments, 4 with marginal language, and 6 with typical language. Over a six-week period, six four-minute interactions per child were observed and coded online. Researchers looked at the children's interactions with their peers and with adults. Results showed that children with lower communication skills had fewer peer interactions than their typical peers. The researchers suggested that children who do not communicate well are less likely to participate. Children with LI and speech impairments were more likely to be ignored by their peers, even if they initiated a conversation. These children were also more likely to not respond or to ignore conversational bids from peers. The children with LI also interacted more with adults than typical children did.

Relevance: This early study showed that there was a relationship between language ability and social interactions. The results suggest that the children who were speech or language impaired were more likely to be ignored, and were more likely to ignore or not respond themselves. This served as early evidence for the need of social communication interventions so that children with LI might have more social success.

Hart, K. I., Fujiki, M., Brinton, B., & Hart, C. H. (2004). The relationship between social behavior and severity of language impairment. *Journal of Speech, Language & Hearing Research, 47*, 647-662. doi: 10.1044/1092-4388(2004/050)

Summary: This study was designed to examine the relationship between the severity of language deficits and social behaviors, specifically in the areas of withdrawal and sociability. Within the category of withdrawal, researchers collected information about behaviors including solitary-active withdrawal, solitary-passive withdrawal, and reticence. Within the category of sociable behaviors, they collected information for prosocial behaviors and impulse control/likeability. Researchers gathered information from the Teacher Behavior Rating Scale (TBRS) for 41 children with SLI and 41 typical language peers. Teachers rated children with SLI as having more reticence and solitary-passive withdrawal and having fewer prosocial

behaviors and lower impulse control. It was observed that girls generally had more prosocial behaviors than boys. In order to compare results for severity, children with LI were separated into moderate or severe impairment, based on the CELF-R. Results showed that language severity was most related to prosocial behaviors. Children who fell in the severe category for language were likely to have fewer prosocial behaviors. Results also showed the children with severe receptive deficits were rated lower for likeability. Severity of impairment, however, was generally not related with withdrawn behavior.

Relevance: This study showed that social problems in children with LI likely stem from several factors, including but not limited to deficits in language expression and comprehension.

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 & Communication Disorders, 40*, 431-454. doi: 10.1080/13682820500071484

Summary: The purpose of this study was to examine the behaviors and strategies in conflict resolution in preschool boys. Researchers filmed unstructured play interactions between 11 preschool-aged boys (ages 4-7) and compared them to the interactions between 20 typically-developing boys (ages 4-6). Special attention was paid to the act of reconciliation following conflict. Conflicts that were observed were coded for cause and reconciliation period. Reconciliatory behaviors observed included invitations to play, self-ridicule, body contact, object offer, verbal apologies, and cognition. Comparisons of behaviors revealed that the boys with LI were less able to reconcile than their typical peers. This could be due in part to the greater number of aberrant conflicts involving boys with LI.

Relevance: The researchers suggested the need to address social communication in treatment with children with LI. In this case, they determined that these children would benefit from instruction on appropriate play behavior and specifically on conflict resolution.

Jerome, A. C., Fujiki, M., Brinton, B., & James, S. L. (2002). Self-esteem in children with specific language impairment. *Journal of Speech, Language & Hearing Research, 45*, 700-714.

Summary: Researchers in this study probed the self-perceptions of 46 children between the ages of 6 and 9, and 34 children between the ages of 10 and 13. Of these children, there were 40 with LI and 40 typically-developing children. The Self-Perception Profile for Children (SPPC) is a 36-item self-report questionnaire that looks at the child's sense of his or her adequacy in five different domains of competence and acceptance: scholastic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct. In the younger group, there were no significant differences between children with LI and typically developing children. In the older group, however, children with LI perceived themselves more negatively in the domains of scholastic competence, social acceptance, and behavioral conduct. This makes sense because these are the domains most influenced by language, and therefore by language impairment.

Relevance: Based on these results, it can be assumed that many children with LI develop lower self-esteem as they get older. With increasing age, demands of interactions become more complex and the differences between children with LI and their typical peers become more apparent. This speaks to the importance of treating the social communication skills of young children with LI.

Klecan-Aker, J. S. (1993). A treatment programme for improving story-telling ability: A case study. *Child Language Teaching and Therapy*, 9(2), 105-115.

Summary: This study was presented as a case study to show the effects of a social communication intervention for a second-grade language/learning disordered male. The goal of this intervention was to increase the subject's ability to tell a story, because of the importance of narratives in academic settings as well as social interactions. His oral story-telling ability was measured before and after the 12-week intervention. The child was taught story grammar elements and assembled narratives from given elements. He also identified likely events in stories and filled in missing details in prompted stories. Results after the intervention showed improvements in the complexity of both his oral and written narratives. His t-units increased and the organization improved.

Relevance: This study was an early example of an intervention directed toward social communication. The purpose was to improve the child's story-telling in order to improve his social interactions. The intervention did yield improvement, which provided a good foundation for more studies of social communication interventions.

Law, J., Garrett, Z., & Nye, C. (2004). The efficacy of treatment for children with developmental speech and language delay/disorder: a meta-analysis. *Journal of Speech Language and Hearing Research*, 47, 924-943. doi: 10.1044/1092-4388(2004/069)

Summary: The purpose of this article was to present the results of a meta-analysis of different interventions for children with developmental speech and language delays or disorders. Thirty-three trials were found in 36 articles, but ultimately only 13 of these were similar enough to be combined. They were categorized based on sample groups and treatment effects on expressive and receptive phonology and language. Results showed that interventions were generally successful for children with phonological or expressive vocabulary deficits, but not as effective for children with receptive vocabulary deficits. The review found that longer interventions (lasting longer than 8 weeks) tended to be more successful.

Relevance: This study shows the need to focus treatment on receptive vocabulary when this is an observed deficit. It also emphasizes the greater impact of longer interventions. This is useful to consider for this thesis and future related research.

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 & Hearing Research*, 48, 868-883. doi: 10.1044/1092-4388(2005/060)

Summary: The purpose of this study was to examine relationships between receptive and expressive language and amount of time to access an ongoing interaction. Ten children with LI and 13 of their typical peers were selected for this study. Subjects attempted to access an ongoing interaction between two unfamiliar peers. Children usually accessed by independently requesting access (access initiation) or by responding to invitations from the two children already playing (initiation response). Four of the children with LI were unable to access the interactions. The other children with LI were able to access, but did not have great success in the ongoing interaction once they did access. The children with LI who did gain access to the group were not addressed as much by their peers and participated less in group play. Researchers compared ratings of language abilities with the time needed to access interactions and the number of utterances in the interaction after accessing. Results showed that students with lower language levels (mostly in expressive language, but some receptive language as well) required more time to access (negative correlation) and used fewer utterances in the interaction (positive correlation).

Relevance: Being able to access an interaction is an important daily social skill. This study shows that children with LI have difficulties with this social skill. The study also suggests that clinicians should be aware that many children with language deficits can be expected to have some form of social deficit as well.

Mansfield, R. (2013). *Outcomes of an emotion word intervention for children with social communication impairments*. (Master's Thesis). Brigham Young University ScholarsArchive (3848).

Summary: Mansfield's thesis was part of a larger study that looked at a story enactment intervention. She looked at the emotion-word productions by three children—one with LI and two with autism spectrum disorder (ASD)—and measured accuracy across the 20 sessions and baseline and follow-up data. Intervention activities were focused on emotion identification and emotion inferences from stories. Results showed that all three children made increases in accurate emotion word productions in at least two categories. Two of the three children also made improvements in valence agreement.

Relevance: This study in connection with the Gibbons' study suggested promising results for a story enactment intervention. The current thesis extended these earlier results by employing a similar intervention using a single subject multiple baseline design.

Marton, K., Abramoff, B., & Rosenzweig, S. (2005). Social cognition and language in children with specific language impairment (SLI). *Journal of Communication Disorders*, 38, 143-162. doi: <http://dx.doi.org.erl.lib.byu.edu/10.1016/j.jcomdis.2004.06.003>

Summary: Researchers examined the social competence of children with SLI. They selected 19 children with SLI (10 boys and 9 girls between the ages of 7 and 10). They also selected an age and gender-matched group of typical language children. The researchers aimed to investigate children's coping strategies and responses to situations that require negotiation, conflict resolution, and initiation of social interaction. They also sought to understand the relationship between language, social pragmatics, and social self-esteem within these children

with SLI. Each child was given 23 hypothetical social situations that probed negotiation, interaction, and conflict resolution strategies. The children were also given a questionnaire to determine ratings of social and academic self-esteem. Questionnaires were distributed to each participant's teacher and parents to determine the child's social behaviors from adult observation. The children with SLI were rated to have significantly lower social (but not academic) self-esteem than their peers. They also used more inappropriate negotiation and conflict-resolution strategies, indicating lower social knowledge and competence. Researchers determined that their social communication disorders were not causally linked to SLI, but that they were co-occurring. Parents and teachers provided differing views on the children's social competence: parents were concerned about their children's social skills, but teachers did not notice a problem.

Relevance: This study showed that pragmatic difficulties and low social skills and self-esteem are related. Interestingly, this relationship was not observed by all (like their teachers). The children with SLI were less able to hypothetically negotiate, resolve conflict, or initiate an interaction; this inability would likely transfer to the child's personal social situations. These situations would reveal social communication deficits of these children. They are aware that they have social problems and have lower self-esteem because of them.

Merkenschlager, A., Amorosa, H., Kiefl, H., & Martinius, J. (2012). Recognition of face identity and emotion in expressive specific language impairment. *Folia Phoniatrica et Logopaedica*, 64(2), 73-79.

Summary: The purpose of this study was to investigate the ability of children with expressive SLI to identify faces and emotional expressions. Participants included 24 children with SLI between the ages of 7 and 11, and a group of 40 age-matched, typically developing children. All children watched a test movie to introduce them to emotion expressions on faces and to mimic gestural-expression. These researchers found that the children with SLI performed significantly lower on both facial recognition and emotional expression identification tasks. This could not be accounted for due to decreased attention on the tasks. The results suggested, rather, that children with SLI have difficulties decoding nonverbal information, like expressions and gestures.

Relevance: Difficulties interpreting this information, the authors suggest, could lead to significant social problems. This suggests that children need more support to interpret the non-verbal elements of social communication in order to have successful interactions with others.

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

Summary: The purpose of this study was to observe and compare the conversational repair strategies of children with PLI, SLI (without pragmatic difficulties), and typical language peers. They selected children in these three groups between the ages of 7 and 11 to participate in one-on-one interactions with an examiner. In these sessions, the examiner provided several opportunities to initiate a repair. The children with PLI had the lowest performance of the three

groups in this task. These children were provided with six weeks of pragmatic-focused therapy. After the intervention, these children showed significant improvements in conversational repairs.

Relevance: This study showed the effectiveness of a pragmatic language intervention. Helping children with PLI to learn more pragmatic skills helped them develop this new skill. This provided grounds for continued research in the area of pragmatic intervention, such as the one in this thesis.

Olswang, L. B., Coggins, T. E., & Timler, G. R. (2001). Outcome measures for school-age children with social communication problems. *Topics in Language Disorders, 21*(4), 40-73.

Summary: This article addresses measures of treatment outcomes for children with social communication problems. The authors discuss the kinds of outcome measures that should be selected based on a model of types of behaviors important to social communication and a framework for viewing those behaviors in several different contexts. Outcome measures are intended to measure breadth and depth of change and then link those changes to the intervention. The paper provides a model for social communication and for sampling and measuring behaviors in different social situations with different contextual and processing demands. It asserts the importance of both quantitative and qualitative measures in order to show change as a result of intervention.

Relevance: This article provides an important foundation and model for measuring progress in social communication interventions. The analysis of data in this thesis included both quantitative and qualitative data in order to provide the most representative picture of the progress of the participants.

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

Summary: The authors proposed two models to explain the relationship between socioemotional behaviors and language ability: social adaptation and social deviance. The Social Adaptation Model (SAM) suggests that children adapt their socioemotional behaviors due to deficits in communication ability, while the Social Deviance Model (SDM) suggests an underlying socioemotional deficit that is unclearly related to communication. The purpose of this study was to compare teacher and parent ratings of sociobehavioral development in 17 preschool children with SLI and 20 age-matched peers. This longitudinal study compared ratings from when the children entered kindergarten and then again when the children entered first grade

Teachers rated children with SLI lower than parents did on social behaviors, suggesting that children behaved more appropriately under certain circumstances, and not as well at times of transition in school. This provided evidence for SAM.

Relevance: Because of differences in ratings between groups for children with SLI, it is suggested that their socioemotional difficulties arise from adapting social behavior to limited communication skills.

Rice, M., Sell, M., & Hadley, P. (1991) Social interactions of speech- and language-impaired children. *Journal of Speech and Hearing Research*, 34, 1299-1307.

Summary: The purpose of this study was to examine the social interactions of children with speech and language impairments. Twenty-six children from a language-acquisition preschool were selected for the study, including 9 children with normally developing language, 6 with SLI, 3 with speech-impairments, and 8 who were learning English as a second language (ESL). Trained observers collected data on social interactions in the classroom for each child in three 40-minute sessions. Results revealed that children with normally-developing language were more likely to initiate interactions and to produce longer responses, and were more preferred recipients of interactions. Children with impaired communication (LI, speech impaired, and ESL) were more likely to communicate with adults and to use shorter responses. ESL children were the least likely to initiate an interaction, and were most likely to be avoided by their peers.

Relevance: This study shows that even preschoolers are sensitive to differences in communication abilities. They are more likely to reject children with lower communication abilities. This demonstrates the social, and likely academic, importance of providing treatment to children with communication impairments.

Richardson, K., & Klecan-Aker, J. S. (2000). Teaching pragmatics to language-learning disabled children: A treatment outcome study. *Child Language Teaching and Therapy*, 16(1), 23-42.

Summary: This study was designed to look at the effects of a pragmatic language intervention for children with language-learning disabilities. The children—11 boys and 9 girls—were between the ages of 6;5 and 9;8. Treatment specifically targeted language skills in domains of conversation, internal responses, and qualitative and quantitative descriptions of objects. Baseline measures were obtained through a criterion-referenced test that investigated language for social skills and pragmatic use. Treatment lasted six weeks, and the same criterion-referenced measure was used at the end. Treatment sessions focused on conversation, receptive and expressive emotion labeling, and descriptions of objects. Results showed improvements in all areas after the intervention, showing that the pragmatic intervention was effective.

Relevance: This study showed that children with language learning disabilities were able to learn social communication skills as a result of intervention. This was one of few studies to specifically address emotional intelligence in a pragmatic language intervention. It yielded promising results for future studies to address social communication skills, and specifically emotional intelligence like this thesis.

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

Summary: The aims of this investigation were to study the ability of children with LI to infer emotions from social situations. Forty-three children with LI and their age matched peers between the ages of 5 and 8 and 9 and 12 were selected to participate. Children were presented with short social scenarios that would elicit emotional responses in the categories of happiness, sadness, fear, and anger. The children were asked to identify the emotion that the main character, Chris, experienced. After some of the tasks, the children were asked to elaborate on why they indicated a particular emotion for a given scenario and what it would be like to feel that particular emotion (e.g., “Why did Chris feel happy?”; “How does it feel inside to be happy?”). Results showed that all groups were able to recognize happiness most easily. As would be expected, typical children were more accurate and elaborated more sophisticatedly than children with LI. Older children in both groups were also more accurate than younger children.

Relevance: This study provided further evidence that children with LI struggle more than their typical language peers to infer emotions from social situations. Authors suggested that addressing emotional inferencing in intervention for children with LI would help them better navigate social interactions. The study in this thesis addresses this skill in the context of story enactment.

Stanton-Chapman, T. L., Denning, C. B., & Jamison, K. R. (2008). Exploring the effects of a social communication intervention for improving requests and word diversity in preschoolers with disabilities. *Psychology in the Schools, 45*, 644-664. doi: 10.1002/pits.20315

Summary: Researchers selected 8 children between the ages of 3;4 and 4;9 who had been diagnosed with developmental disabilities to participate in this social communication intervention study. A multiple baseline design was used across two dyads and replicated across two more dyads in order to measure effectiveness of the intervention. Specific social skills addressed sequentially in intervention included social initiations (“Talk to your friend”), listening and responding, using a peer’s name, and turn-taking. These were taught and practiced repeatedly in socially meaningful contexts. Results showed that most participants increased peer-directed requests, verbal requests, and word diversity.

Relevance: This study showed that a social communication intervention for developmentally delayed children in preschool produced increases in social interaction skills.

Stanton-Chapman, T. L., Denning, C. B., & Jamison, K. R. (2012). Communication skill building in young children with and without disabilities in a preschool classroom. *Journal of Special Education, 46*(2), 78-93. doi: 10.1177/0022466910378044

Summary: Eight preschool children with social impairments (with or without an IEP) were selected to participate in this study. The goal was to evaluate the turn-taking skills of these children, and to measure increases in peer-directed initiations that were responded to as a result of a social communication intervention. Sessions occurred 4 to 5 times per week, with each session lasting 20 to 25 minutes. Dyads in the sessions played in dramatic play themes, and social communication skills were taught in contexts of stories. Results showed that all eight participants showed increases in peer initiations with immediate responses. This skill transferred to follow-up sessions, but not to classroom behavior.

Relevance: This study showed that children with weak social skills, with and without specific diagnoses, were able to increase their peer interactions with the support of a social communication intervention. The skills did not transfer to classroom behavior, so this suggested that these young children need more support and more contextualized classroom learning to facilitate better peer interactions.

Stanton-Chapman, T. L., Kaiser, A. P., Vijay, P., & Chapman, C. (2008). A multicomponent intervention to increase peer-directed communication in head start children. *Journal of Early Intervention, 30*(3), 188-212.

Summary: Eight Head Start preschoolers between the ages of 3;9 and 5;0 were selected to participate in a social communication intervention study that was designed to help these children increase peer-directed communication. These children were at risk for low language and poor social skills. Intervention was designed to provide play contexts to learn and apply social communication skills including initiations, appropriate responses to the initiations, questions, or actions of a peer, appropriately obtaining a peer's attention, and finally maintaining a social interaction with a peer. Children participated in dyads in a multiple baseline design. Results indicated that overall treatment was effective for all participants in increasing social communicative behaviors. Increases were observed in verbal behaviors, social communication skills, and target vocabulary words in 4 of the 8 participants. Generalized results were not significant to lead to overall increases in peer interactions and friendship formation, but they did provide enough positive data to suggest that more studies like this should be done to determine the effectiveness of social communication interventions.

Relevance: Results for this study were varied, but still strong enough to continue research in the area. Children did make gains in intervention, and required more support to generalize skills. It showed that preschool children at risk for language and social difficulties made social improvements as a result of a social communication intervention.

Stanton-Chapman, T. L., & Snell, M. E. (2011). Promoting turn-taking skills in preschool children with disabilities: The effects of a peer-based social communication intervention. *Early Childhood Research Quarterly, 26*(3), 303-319. doi: <http://dx.doi.org.erl.lib.byu.edu/10.1016/j.ecresq.2010.11.002>

Summary: This study was designed to investigate the turn-taking skills of 10 (5 dyads) at-risk preschoolers with disabilities who participated in a social communication intervention. The intervention targeted initiations, responses, and turn-taking skills, and also taught children

to repair and revise and to avoid interruptions and overlaps in peer conversation. An increasing rate of initiations with immediate peer responses showed that the intervention was highly effective for five children, moderately effective for three children, and mildly effective for two children. The intervention also focused on increasing turn-taking skills. The intervention was highly effective for one child, moderately for three, mildly for two, and ineffective for four. Generalization results were also promising, showing that nine out of ten children demonstrated increased peer play, increased child-initiated reactions with positive peer responses, and decreased withdrawal behaviors.

Relevance: Results showed that this intervention was overall effective, and that skills learned in intervention transferred well to their own peer interactions. This is encouraging for the continued research in the area of social communication interventions for preschoolers and with older children at risk for language and social problems.

Stanton-Chapman, T. L., Walker, V., & Jamison, K. R. (2014). Building social competence in preschool: The effects of a social skills intervention targeting children enrolled in Head Start. *Journal of Early Childhood Teacher Education*, 35(2), 185-200. doi: 10.1080/10901027.2013.874385

Summary: This study was a classroom-based social communication intervention to increase social competence for 10 (7 boys and 3 girls) at-risk preschoolers. Each child was in a separate classroom, and teachers were coached on how to administer the intervention. The intervention was directed toward target children, but other class members participated to allow a greater number of peer interactions. Specific skills targeted included initiating verbal interactions with peers, listening to and responding to peers, using a peer's name to get their attention, and taking appropriate conversational turns. Stories that facilitated thematic play were read and enacted. Results showed that 9 out of 10 children increased their social play behaviors, and 9 out of 10 decreased their non-interactive play.

Relevance: This study showed the positive effects of a classroom-based social communication intervention that was administered by teachers. This suggests that at-risk preschoolers are able to learn important social skills with their other classmates in a classroom setting.

Stevens, L. J., & Bliss, L. S. (1995). Conflict resolution abilities of children with specific language impairment and children with normal language. *Journal of Speech & Hearing Research*, 38, 599-611.

Summary: This study examined the conflict-resolution abilities of children with LI. Thirty children with LI and 30 typical language peers between grades 3 and 7 were selected to participate in conflict resolution activities. They were presented with hypothetical problem-solving situations and a related imagined conflict that requires a solution. They also engaged in enactments of conflict situations. It was found that children with LI provided fewer types of conflict resolution strategies than their language-typical peers for the hypothetical problem-solving situations. Though there were not significant differences for types of strategies between

language groups for the enactment portion, children with receptive and expressive LI performed more poorly than those with primarily expressive LI.

Relevance: Resolving conflicts is an important social communication skill, and this study showed that children with LI struggle with this skill, at least in hypothetical contexts. This suggests that they likely have difficulties in actual social interactions and would benefit from targeting conflict resolution in a social communication intervention.

Swanson, L. A., Fey, M. E., Mills, C. E., & Hood, L. S. (2005). Use of narrative-based language intervention with children who have specific language impairment. *American Journal of Speech-Language Pathology, 14*, 131-141.

Summary: Ten children with SLI between the ages of 7 and 8 participated in a six-week production-based intervention approach that was focused on the production of grammatical structure and narrative form and content. The purpose of the study was to evaluate the feasibility of a narrative-based language intervention for children with SLI. This kind of intervention includes activities that are skill-, interaction-, and meaning-based, including story retell, generation, and co-construction. Results indicated that 8 of the 10 children made clinically significant increases in narrative quality in pre- and post-test measures. This suggested that larger scale research regarding narrative-based language intervention would be warranted.

Relevance: This study indicated the need for more research regarding narrative-based intervention for children with SLI. This suggests that teaching narratives can be effective for these children. This thesis examined an intervention combining narrative activities and social communication activities.

Timler, G. R. (2003). Reading emotion cues: Social communication difficulties in pediatric populations. *Seminars in Speech and Language, 24*(2), 121-130. doi: 10.1055/s-2003-38903

Summary: This study is a review of clinical populations of children with language disorders and their emotion comprehension abilities. It states that emotion understanding requires children to interpret linguistic cues or what someone says, nonlinguistic cues like facial expressions or prosody, and situational cues. Timler reports that children with LI are less accurate and require more time in identifying emotions from facial expressions; additionally, children with LI struggle with emotion inferencing. She lists five levels of teaching emotion understanding in intervention: photographic facial expression recognition, schematic expression recognition, situation-based emotions, desire-based emotions, and belief-based emotions. This article shows the need for addressing emotional intelligence in children with ASD and with LI, and suggests some assessment and intervention principles.

Relevance: Timler's article summarized the emotional difficulties of children with LI and provides some guidance for intervention targeting emotional intelligence. The intervention in this thesis is a social communication intervention focused in part on emotional intelligence, and addressed all the levels of emotion understanding.

Timler, G. R. (2008). Social knowledge in children with language impairments: Examination of strategies, predicted consequences, and goals in peer conflict situations. *Clinical Linguistics & Phonetics*, 22, 741-763. doi: 10.1080/02699200802212470

Summary: This study investigated social knowledge of school-aged children with and without LI. Two groups of 12 children between the ages of 8;1 and 12;2 were selected for the study, with 12 children with LI and 12 typical age-matched peers. Children were presented with 12 hypothetical peer conflict vignettes, and in open-ended and forced choice tasks had to indicate resolutions. Researchers compared prosocial responses to parent and teacher ratings of social behaviors. Results showed that children with LI produced fewer prosocial conflict resolution strategies, and predicted fewer positive outcomes when asked to describe how a friend might feel in one of the given vignettes. Teacher ratings of social skills correlated with the children's selection of prosocial strategies. This shows that children with LI struggled with conflict resolution, and did not resolve conflict in prosocial ways as often as their typical peers do.

Relevance: This study provides further evidence that children with LI need more support to use prosocial strategies in peer conflict resolution. It also provides evidence that suggests the need to address these kinds of social communication skills in intervention with these children so they can have more social success.

Wadman, R., Durkin, K., & Conti-Ramsden, G. (2011). Social stress in young people with specific language impairment. *Journal of Adolescence*, 34, 421-431. doi: <http://dx.doi.org.erl.lib.byu.edu/10.1016/j.adolescence.2010.06.010>

Summary: This study compared self-report measures of social stress, social skills, and social acceptance of children with and without SLI. They compared scores of 28 children with SLI and 28 typical language peers, all between the ages of 11 and 15. Results showed that though there were no significant group differences in categories of social skills and social acceptance, children with SLI rated themselves significantly higher in measures of social stress. Lower perceptions of social skills and acceptance did predict more social stress.

Relevance: This study shows that children with SLI experience more social stress than their typical peers. This suggests that they would benefit from intervention that targets social skills so they feel more confident in social interactions with their peers.

APPENDIX B: Coding Manual

Emotion Word Productions during a Social Communication Intervention

Guidelines for Each Coding Category

Emotion-Based Word (Child's Production) – Write (verbatim) the emotion word as it is produced by the participant.

Category of Child's Emotional Response – Group each emotion word into the category that is most closely synonymous to its actual meaning (e.g., *mad* will be grouped under *anger*; *excited* will be placed under *happiness*, etc.). Emotional categories will coincide with those defined by Dunn et al. (1987):

Happiness (H): like, love, happy, enjoy

Surprise (Su): surprise, surprised

Anger (A): mad, angry

Fear (F): afraid, frightened

Disgust (D): used to describe feelings toward sensory feelings, smell, taste, sight, etc., smelly, yucky

Contempt (C): used to describe general feelings of dislike towards a person, laughing at someone, "I hate the boy."

Sadness (Sa): unhappy, sad, miserable

Category in Error (Target Production) – The production is considered correct if it is the same word (or a form of the same word) that the clinician is attempting to elicit. Spontaneous productions that are contextually appropriate are also considered accurate. Productions that are not the same as the word the clinician attempted to elicit are considered inaccurate and record the intended category of emotion state. For example, the clinician was attempting to elicit *sad* but the child said happy, the category in error was *sad*.

Production and Target Match – Compare the child-produced emotion word category and the target category. If they match, then it is counted as correct. If they do not match, it is counted as incorrect. For example, if the child produces a word in the happiness category and the target word category was happiness it would be counted as correct. But if the child produces a word in the sadness category but the target word category was happiness it would be counted as incorrect.

+ = Correct (production and target word match)

- = Incorrect (production and target word do not match)

Time of Production – Write the exact time in the clip that the emotion word is produced (e.g., 18:42).

Type of Production – Write the amount of support that is required in order to elicit each emotion word produced:

Spontaneous (S): The participant produces the emotion word without any modeling or cueing from the clinician.

Cued (C): Emotion words produced after phonological cues (e.g., the clinician says “/s/” in order to elicit “sad”), semantic cues (e.g., “He fell in the water, he is not smiling, he looks ___.”), closed cues (e.g., “The boy is feeling ___”), or gestural/visual cues (e.g., using pictures of faces expressing emotions, like a frowny face; emotion words that are seen printed in a story and read) are coded as cued productions.

Question (Q): The child produces the emotion word following a question (e.g., “How is the boy feeling?”). The question does not need to be specifically about emotion, but produces an emotion word following any question asked by the clinician (e.g., “What is the boy doing?” and “What did she bring you?”).

Repetition/Imitation (R): The clinician produces an emotion word and within the next five seconds, the child repeats it (or a simplified form of it). If either the clinician or child produces other verbalizations before the child repeats the word, it is not counted as a repetition.

Correct Valence vs. Incorrect Valence – Valence is considered correct if the word produced is of the same tone as the intended word. Words produced of a different tone as the intended word are considered to have incorrect valence (e.g., saying “happy” instead of “sad” is incorrect valence because the two have opposite tones; saying “mad” instead of “sad” is correct valence because the two have similar tones. Surprise can be positive or negative depending on the context. If the character or child is coming out better than he or she started, then the valence is positive. If the character or child is coming out worse than he or she started, then the valence is negative).

+ = Correct valence

- = Incorrect valence

Specificity—Specificity is considered correct if the word produced is correct and appropriately specific in the context. It is considered incorrect if the emotion word is inappropriate in the context or if the word is correct but not specific (“not happy” for “sad”).

+ = Correct specificity

- = Incorrect specificity

Overextended – Any emotion word that is overextended to situations will be noted. If the child says ‘happy’ for any situation where there is an emotion word needed, ‘happy’ is being overextended. If the emotion word produced by the child is not being overextended, then this column may be left blank.

Special Coding Considerations

Code the following:

1. Specific names for emotions (e.g., sadness, happiness, anger, etc.)
2. Adjective forms of emotion words (e.g., excited, scared, annoyed, etc.)
3. The verbs *like*, *love* and *hate*

4. Words describing facial expressions associated with specific emotions (e.g., “She feels *frowny*” Or “That’s a *scary* face”)
5. Verb forms of emotion words that are produced in a way to elicit emotion (e.g., to excite, to surprise, to frighten, etc.)
6. Child’s response is phrased as “feels _____” or when the child answers the question “how does he feel?”

Do not code the following:

1. Adjectives describing actions or appearances (e.g., funny, cute, silly, weird, etc.)
2. Expletives and interjections (e.g., Whoa! Hey! Dang it, etc.)
3. Apologies and “sorry”
4. Crying, in pain, laughing, smiling, determined

If the child reads the emotion-based word aloud or asks, “How do you spell (emotion word)”, the production is not coded.

If the child produces the same emotion word multiple times in succession, the number of emotion words coded will depend on the situation. If the child is repeating the same word but in response to different contexts, continue to code each repetition (e.g., “sad” turn page “sad”). However, if the child is repeating the emotion word in regards to the same context, code only the first repetition (e.g., while looking at the same page, “sad, sad, sad, sad.”)

If the emotion word produced is the repetition of the clinician’s production, valence does not need to be coded.

For productions such as “not (emotion word) or “don’t (emotion word)” (e.g., “I’m not happy” or “I don’t like oranges”), judge the emotional category based on the context of each individual utterance.

For questions about what should or should not be considered an emotion-based word and which emotional category each word belongs to, refer to the appendix of emotion words compiled by Johnson-Laird and Oatley (1989).

APPENDIX D: Table of PND Calculations

Table A1

Total Percentage of Non-Overlapping Data after Baseline Sessions

Participant	Emotion Word Category						Mean PND
	Happiness	Anger	Sadness	Fear	Surprise	Disgust	
MK	78.3	91.3	65.2	39.1	26.1	8.7	51.5
AdK	50.0	22.7	18.2	18.2	18.2	18.2	24.3
SS	36.4	0.0	31.8	45.5	59.1	27.3	33.4
AIK	82.6	73.9	78.3	52.2	56.5	21.7	60.9
JRS	69.6	78.3	69.6	17.4	60.9	17.4	52.2
Overall Mean PND	63.4	53.2	52.6	34.5	44.2	18.7	

APPENDIX E: Tables of Percentages of Production Types

Table A2

Percentage of Spontaneous Productions per Intervention Session

Participant	Session Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MK	11	23	5	0	0	4	40	5	11	8	8	22	18	21	8	11	6	41	27	26
AdK	0	10	22	0	8	12	0	57	21	22	0	0	11	16	11	10	7	18	46	
SS	0	17	9	0	17	8	0	33	0	6	8	18	22	0	25	0	33	3	12	
AlK	15	0	10	32	19	15	37	7	80	9	38	29	4	14	100	16	17	12	29	6
JRS	19	31	45	18	9	17	17	13	25	9	42	33	20	32	0	16	17	14	20	41

Table A3

Percentage of Productions in Response to a Question, per Intervention Session

Participant	Session Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MK	37	51	36	6	26	77	20	59	25	42	54	30	71	50	83	67	65	38	45	58
AdK	57	81	44	71	58	59	95	29	45	39	90	100	82	68	77	30	36	67	8	
SS	45	28	82	100	83	42	86	17	61	44	64	27	70	89	50	67	44	56	40	
AlK	62	89	67	24	6	63	43	70	20	48	47	23	92	66	0	84	62	79	38	44
JRS	75	50	42	54	36	33	67	53	25	77	42	30	34	32	33	68	33	71	80	45

Table A4

Percentage of Cued Productions per Intervention Session

Participant	Session Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MK	46	23	45	82	68	19	20	28	64	50	35	44	12	21	8	22	12	10	27	0
AdK	37	10	33	26	35	29	5	14	32	39	10	0	7	16	11	40	36	16	46	
SS	45	56	9	0	0	42	14	50	39	50	28	55	9	11	8	33	22	41	32	
AIK	13	11	21	40	69	22	17	23	0	35	15	48	0	21	0	5	19	9	33	50
JRS	6	15	9	29	45	33	11	33	50	14	17	27	40	37	53	11	33	14	0	14

Table A5

Percentage of Imitated Productions per Intervention Session

Participant	Session Number																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MK	6	3	14	12	5	0	20	8	0	0	3	4	0	7	0	0	18	10	0	16
AdK	7	0	0	3	0	0	0	0	2	0	0	0	0	0	0	20	7	0	0	
SS	9	0	0	0	0	8	0	0	0	0	0	0	0	0	17	0	0	0	16	
AIK	10	0	2	0	6	0	3	0	0	9	0	0	4	0	0	0	2	0	0	0
JRS	0	4	3	0	9	17	6	0	0	0	0	9	6	0	13	5	17	0	0	0