



2017-06-01

# Using a Social Communication Intervention to Increase Emotion Word Use in Children with Language Impairment

Breeana Lee Bell  
*Brigham Young University*

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Using a Social Communication Intervention to Increase  
Emotion Word Use in Children with  
Language Impairment

Breana Lee Bell

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

Martin Fujiki, Chair  
Bonnie Brinton  
Richard W. Harris

Department of Communication Disorders  
Brigham Young University

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## ABSTRACT

### Using a Social Communication Intervention to Increase Emotion Word Use in Children with Language Impairment

Breeana Lee Bell  
Department of Communication Disorders, BYU  
Master of Science

The purpose of this thesis was to evaluate the efficacy of an intervention to increase the production of emotion words in five children with language impairment. Participants were between the ages of 5;11 (years; months) and 11;3 (at the onset of enrollment in treatment) and had been identified with language impairment. Each participant completed between three and six baseline sessions, 20 twenty-minute intervention sessions, and three follow-up sessions. Tasks included story reading, story enactment, and journaling. Each session was recorded and then coded for emotion category (*sadness, anger, fear, and surprise*), errors made, type of production, and valence agreement. Total emotion word production per category is reported along with percentage of non-overlapping data calculations to determine the effectiveness of treatment for each participant for each emotion word category. Based on percentage of non-overlapping data calculations, treatment was moderately effective for four of the five participants in at least one or more emotion word category. Treatment was mildly effective for all five participants in at least one emotion category. Each participant was observed to make between one and five valence errors throughout the intervention. The errors made by participants often involved the substitution of a simple emotion word category for a more complex emotion word category. Participants were more successful with intervention tasks when provided increased support from the clinician, as seen by most productions being made in response to a question or in response to a cue. While results from this intervention were variable, participants generally made improvements from their participation in this intervention. Utilization of a similar intervention framework with a few alterations based on the limitations observed would be beneficial in future research.

Keywords: language impairment, social communication intervention, emotion understanding

## ACKNOWLEDGMENTS

First, I would like to thank Dr. Brinton and Dr. Fujiki for allowing me to be involved in their research for the past few years. The information that I have learned from them has been useful throughout graduate school. I would also like to thank Dr. Fujiki for his willingness to help me throughout this thesis process. His patience and guidance have been an integral part in my completion of this paper. Also, I would like to thank Dr. Brinton and Dr. Harris for being willing to be on my committee. I would also like to thank Dr. Harris for his willingness to join my committee later when I was in need of another committee member.

Next, I would like to thank my family. I am grateful for my mother Lorrie Bell for loving and believing in me, teaching me to work hard, and always pushing me to be my best. Also, I am thankful for my father Reggie Bell for supporting me and teaching me to love learning. I am thankful for my brothers Braddin and Bryce Bell for being my best friends and always being kind and supportive of me. I would also like to thank my fiancée Matt Loveland for being understanding and supportive of me these last few months as I finished this thesis. Finally, I am thankful for all of my other family (grandparents, aunts, uncles, cousins) and friends for their love and support. I am blessed to have fabulous people in my life.

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## DESCRIPTION OF THESIS CONTENT

This thesis, *Using a Social Communication Intervention to Increase Emotion Word Use in Children with Language Impairment*, is part of a larger research project examining the effectiveness of a social communication intervention for children with Language Impairment. The format for this thesis is an integration of traditional thesis submission requirements and formatting for journal publication. The preliminary pages were completed in a manner as to fulfill requirements for submission to the university, and the thesis report was completed as a journal article. This included formatting typical of research articles that are submitted to peer-reviewed journals in the field of communication disorders. The various appendices included in this thesis are described in the list of appendices.

## **Introduction**

Children with language impairment (LI) have serious difficulty with language production and comprehension in the face of relatively typical growth in other areas of development (Leonard, 2014).<sup>1</sup> Recent work has shown that these difficulties extend into the domain of social communication and involve behaviors not traditionally thought to be problematic for children with LI. The purpose of this study was to examine a social communication intervention designed to increase emotion word vocabulary in five children with LI.

### **LI and Social Communication**

By definition, children with LI have notable problems with the syntactic and semantic aspects of language. However, recent work has suggested that these children may also have difficulties in social communication. According to Olswang, Coggins, and Timler (2000), social communication is defined as “using language in interpersonally appropriate ways to influence people and interpret events” (p. 53). Adams (2005) states that “social communication development is founded on the synergistic emergence of social interaction, social cognition, and pragmatics” (p. 182).

Adams (2005) stated that social communication problems involve “a limitation in the development of social, cognitive, and language skills necessary for contextually appropriate, meaningful, and effective interpersonal communication” (p. 182). One aspect of social communication that children with LI have demonstrated difficulty with is social and emotional learning, which includes behaviors such as recognizing emotions (their own and those of others) and regulating emotions. Elias and Weissberg (2000) provided examples of behaviors that

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<sup>1</sup> In this thesis, the terms language impairment (LI) and specific language impairment (SLI) will be used as synonyms referring to children who have language problems in the face of relatively typical skills in other areas of development.

require social and emotional learning. These include “communicating effectively; the ability to work cooperatively with others; emotional self-control and appropriate expression; empathy and perspective taking; optimism, humor, and self-awareness; the ability to plan and set goals; solving problems; and resolving conflicts thoughtfully and nonviolently” (p. 187). Elias and Weissberg also argue that social and emotional learning is critical for an individual to be successful in environments such as school or the workplace. Children with LI have been observed to demonstrate difficulty with these aspects of social and emotional learning as a result of their deficits.

As indicated by Elias and Weissberg (2000), emotional intelligence is a key component of successful social and emotional learning. According to Taylor (2005), emotional intelligence can be defined as “the ability to manage our relationships and ourselves effectively” (p. 139). Several subcategories of emotional intelligence have been found to be problematic in children with LI. Although many aspects are important, this intervention will focus on emotion understanding as these skills are necessary for the eventual development of emotion regulation and social and emotional learning.

### **LI and Emotion Understanding**

Saarni (1999) describes emotion understanding as the “ability to discern and understand others’ emotions, using situational and expressive cues that have some degree of cultural consensus as to their emotional meaning” (p. 106). Children with LI have been observed to demonstrate a variety of impairments in regards to emotion understanding. Some of these problems involve the most basic aspects of emotion understanding. For example, Spackman, Fujiki, Brinton, Nelson, et al. (2006) investigated the ability of children with LI and their typically developing peers to recognize expressions of emotion on faces. Participants were

shown a series of photographs and were subsequently asked which emotion was being expressed. Researchers found that while participants from both groups demonstrated similar performance with the emotion categories of happiness, sadness, anger, and fear, children with LI scored significantly lower than typical children in the categories of disgust and surprise.

Merkenschlager, Amorosa, Kiefl, and Martinius (2012) also evaluated the ability of children with LI to identify emotions from faces, but did so by adding a video component. Participants included 24 children with LI and 24 typically developing age-matched peers. These children were shown a movie and then asked to identify the emotions of different actors from photographs and line drawings of the movie. Children with LI scored significantly poorer on this task than did their typically developing age-matched peers.

Another basic aspect of emotion understanding that is difficult for children with LI is the ability to interpret emotion conveyed by prosody. Fujiki, Spackman, Brinton, and Illig (2008) asked a group of children with LI and a group of typically developing age-matched peers to listen to a short passage with age appropriate content, read in a way to express the emotions of happiness, anger, fear, or sadness. The researchers found that children with LI performed more poorly than did their typical peers in identifying the correct emotion expressed. Fujiki et al. also found that happiness was the easiest emotion to identify, followed by anger, and sadness. Fear was the most difficult. Another interesting finding was the increased occurrence of valence errors (e.g., misidentifying a negative emotion as a positive emotion, such as saying happiness when the target was anger) made by children with LI when compared to typical children.

Taylor, Mayberry, Grayndler, and Whitehouse (2015) completed a similar study that compared the ability of children with LI to identify emotion from prosody when compared to children with autism and typically developing children. Participants included 29 children with

autism, 18 children with LI, and 66 typically developing children. Each participant was asked to listen to a variety of sentences that expressed happiness, sadness, fear, anger, surprise, or disgust by the tone of voice. Participants were then asked to identify the different emotions. Researchers found that children with LI and autism demonstrated difficulty identifying both simple and complex emotions from prosody. They also determined that children with LI were slower to identify the emotions from the sentences than either the children with autism or the typically developing children.

Children with LI have also been observed to have difficulty with more sophisticated aspects of emotion understanding. Ford and Milosky (2003) examined the emotion inferencing skills of kindergarten children with LI and their typically developing age-matched peers. Participants were asked to infer the emotional reaction of a character from a story, and provide their answer using these facial expressions. Children with LI scored significantly lower than typically developing children in their ability to infer emotions, regardless of presentation modality (verbal, visual, or verbal and visual) or emotion requested. Ford and Milosky also found that although some typical children made valence errors (between one & five errors throughout the study), every participant in the group with LI produced between 2 and 15 valence errors throughout the study.

Spackman, Fujiki, and Brinton (2006) replicated Ford and Milosky's (2003) study by evaluating the ability of elementary-aged children with LI to infer emotions from specific situations. Participants in this study included 43 children with LI and 43 typically developing age and gender-matched children. Participant groups were further divided into ages 5-8 and ages 9-12. Each participant was presented with a series of stories in which a main character was involved in a situation to elicit a specific emotion. These emotions included, anger, happiness,

fear, and sadness. Stories consisted of a mix of words and pictures. Spackman et al. found that happiness was the most accurately identified emotion, followed by sadness, and fear. Anger was the most difficult to identify. These researchers also found that older children with LI inferred emotion more accurately than did younger children with LI. Typically developing children of both ages inferred emotions more correctly than either group of children with LI.

Another aspect of emotion understanding that children with LI demonstrate difficulty with is emotion dissemblance (hiding emotion for social purposes). Brinton, Spackman, Fujiki, and Ricks (2007) evaluated the ability of children with LI and their typical peers to dissemble emotions for social situations. Researchers created ten hypothetical situations in which a child was presented with a scenario (e.g., receiving a disappointing gift from grandma) and then asked a series of questions. These questions included a comprehension question (regarding story information), an emotion question (How does the character feel?), a dissemblance question (What should the character do?), and a display rule question (What would the character's parents want them to do?). Children with LI suggested that the character should dissemble their emotions significantly less often than typically developing children. Children with LI also showed more variability in their answers on the dissemblance and display rule questions than typically developing children. However, the groups did not significantly differ on their response to the display rule question.

Brinton, Fujiki, Hurst, Jones, and Spackman (2015) replicated and extended the work of Brinton et al. (2007). These authors presented participants with the same hypothetical dissemblance task used by Brinton et al. Additionally, each participant then took part in a naturalistic dissemblance task. The children were individually presented with four natural scenarios that required dissemblance. Three of these scenarios were considered low cost to the

participants (dissemblance did not affect them personally), and the fourth was considered high cost (dissemblance resulted in loss of a desired prize). These researchers found that children with LI dissembled emotion significantly less often than typically developing children in the hypothetical situations. The children with LI and typically developing children did not differ on the three low-cost naturalistic tasks. Performance on the high cost task (the disappointing prize) showed a notable trend (.058) with more children with LI displaying negative emotions more often than their typical peers. As seen from the information reported in these studies, there is evidence that children with LI have difficulty with emotion understanding.

### **Social Communication Interventions**

Despite the deficits in emotional intelligence (specifically emotion understanding) that have been noted, very few social communication interventions have been completed to determine the ability of children with LI to learn and develop emotion understanding skills. In an effort to evaluate the efficacy of social communication interventions for school-age children with LI, the American Speech Language and Hearing Association created an ad hoc committee to review treatment approaches that were being used with this population (Gerber, Brice, Capone, Fujiki, & Timler, 2012). This committee completed a systematic review of the literature to find efficacy studies that were completed between 1975 and 2008. Only eight studies were found that met the criteria for consideration, and few of these examined any aspect of emotional intelligence. Committee members thus determined that further research was needed to expand the knowledge of best clinical practice for treatment of impairments in children with LI.

It should be pointed out that a number of studies have been completed since this review (Adams et al., 2012). Additionally, the review did not include work done with children under 6 years or over 11 years of age (Brinton, Robinson, & Fujiki, 2004; Stanton-Chapman, Denning, &



Jamison, 2008). One of the most notable studies completed since this review is the work of Adams and colleagues. These researchers studied 88 children diagnosed with pragmatic and social communication needs. Participants were randomly assigned to either participate in the social communication intervention (while stopping other treatment) or continue usual treatment methods in their school settings. Researchers found that scores on the CELF-4 before and after the study were not significantly different between the experimental and control groups. Testing did reveal a significant difference in parent reported outcomes, with parents of children in the social communication intervention group reporting higher gains for their children. At the end of the study, significant differences in favor of the social communication intervention group were observed in the Targeted Observation of Pragmatics in Children's Conversation instrument, the Pragmatics Rating Scale, the parent reported outcome, and the teacher reported outcome. Thus, researchers found that while social communication intervention did not appear to impact structural scores over regular intervention, it did improve the social communication abilities of participants as determined through informal measures. Despite the presence of these other studies, there is still a notable lack of research regarding the effect that social communication interventions have specifically on emotion understanding.

The goal of the current research project was to determine if the emotional competence of children with LI could be improved through a social communication intervention. Specifically, five children with LI were enrolled in an intervention designed to increase emotion competence, as indicated by appropriate production of emotion words. The following research questions were addressed:

1. Does the ability of participants to produce emotion words increase over the course of 10 weeks of intervention?

2. What is the effectiveness of treatment for each child on each specific emotion category, as measured by percentage of non-overlapping data?

### **Method**

The current study was embedded in the context of a larger social communication intervention. The data from this study came from the third semester that this social communication intervention was being implemented.

### **Participants**

Five children, three girls and two boys, were included in this study. Participants were between the ages of 5;11 (years;months), and 11;3 at the beginning of the study. Participants with LI were identified based on enrollment in intervention and existing testing by the school speech language pathologist (SLP). Group membership was confirmed by scores from the Clinical Evaluation of Language Fundamentals- 5th Edition (CELF-5; Semel, Wiig, & Secord, 2013) and the Children's Communication Checklist-2 (CCC-2; Bishop, 2003). These data are presented in Table 1. Autism, Intellectual Disability (ID), and other disabilities were ruled out in an effort to reduce confounding variables. Each participant also completed a pure tone 20 dB HL hearing screening to assess hearing status. All participants attended the same elementary school, and were selected by the school SLP. Informed consent documentation was distributed and completed for each participant before enrollment in the social communication intervention program. Four of the participants from this study had already completed one or two other semesters in this program. For one participant (MG), this was their first semester. Individual descriptions of each participant are as follows.

Table 1

*Children's Communication Checklist-2<sup>1</sup> and Clinical Evaluation of Language Fundamentals-5 Percentile Scores<sup>2</sup>*

Instruments	Participants				
	JRS	ALK	SS	JS	MG
CCC-2 <sup>1</sup> Subtests					
Speech	1.0	1.0	0.4	37.0	1.0
Syntax	16.0	9.0	0.1	2.0	25.0
Semantics	5.0	5.0	1.0	2.0	5.0
Coherence	5.0	2.0	1.0	2.0	1.0
Initiation	16.0	50.0	1.0	16.0	37.0
Scripted Language	16.0	25.0	1.0	50.0	25.0
Context	1.0	25.0	2.0	1.0	16.0
Nonverbal Communication	1.0	16.0	1.0	2.0	5.0
Social Relations	5.0	16.0	5.0	9.0	5.0
Interests	9.0	50.0	2.0	63.0	37.0
GCC <sup>3</sup> Percentile	2.0	7.0	0.1	4.0	5.0
SIDI <sup>4</sup>	1.0	16.0	6.0	7.0	9.0
CELF-5					
Core Percentile	0.2	8.0	2.0	7.0	4.0

*Note.* <sup>1</sup>Children's Communication Checklist-2 (CCC-2; Bishop, 2003). <sup>2</sup> Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel, Wiig, & Secord, 2013). <sup>3</sup>General Communication Composite. <sup>4</sup>Social Interaction Difference Index.

**JRS.** JRS began participating in this social communication intervention when he was 11;3. The school semester studied was his second semester participating in the intervention. JRS was a Caucasian male. He had chronic otitis media as a child, and his parents reported that he had a serious hearing impairment until around the age of 3;0. Tubes were inserted when JRS was 3;6, and hearing testing by an audiologist revealed that JRS had normal hearing at age 7;4. JRS also participated in speech and language testing at a pediatric rehabilitation center when he was 7;4.

JRS demonstrated severe articulation deficits as well as problems in both expressive and receptive language abilities (though receptive language abilities were judged to be higher than

expressive abilities). Further testing was completed when JRS was 10;4 and again when he was 11;3. This testing demonstrated that JRS had low overall language abilities and mild articulation deficits. At the beginning of this study, JRS was receiving resource services for math, reading, and writing. He was also receiving speech and language services for his articulation and language deficits from the school SLP.

JRS demonstrated significant difficulties on multiple subtests of the CCC-2, including speech, semantics, coherence, scripted language, context, and social relations. JRS's core language score on the CELF-5 was at the 0.2 percentile. According to the school SLP, JRS had a short attention span, and he demonstrated difficulty transitioning between tasks and situations. Due to these deficits, JRS was observed to have difficulty maintaining a conversational topic, especially those introduced by conversational partners. He also needed reminders from the clinician to pay attention and complete tasks. These deficits prevented JRS from interacting effectively, and thus qualified him for participation in this intervention program.

**ALK.** ALK initially began participating in this social communication intervention when she was 10;1. The semester studied was her third semester in the intervention. ALK was a Caucasian female, and she had been identified as having LI when she was in preschool. At the age of 4;10, ALK demonstrated severe phonological and articulation deficits. ALK's speech production continued to be characterized by velar fronting and cluster reduction when she was tested at 6;11. At the time of the study, ALK no longer demonstrated difficulty with phonological processes or articulation deficits. When ALK was 8;0, she was diagnosed with learning deficits by school personnel. During the time she was enrolled in this study, ALK was also receiving resource services for reading, and speech and language services for articulation and syntax deficits.

ALK demonstrated difficulties on multiple subtests of the CCC-2, including speech, syntax, semantics, coherence, nonverbal communication, and social relations. ALK's core language score on the CELF-5 was at the 8th percentile. ALK also demonstrated severe difficulty with areas of social communication based on social interactions with adults and peers at school. The school SLP reported that ALK demonstrated increased difficulty making inferences in a variety of situations, and also demonstrated difficulty maintaining and contributing to conversations. ALK was also observed to have difficulty inferring the emotional reactions associated with various situations as was noted from her performance in previous semesters in this intervention program. For example, when asked how a character would feel in a particular situation, ALK often responded that she did not know or with an incorrect emotion. These deficits impacted ALK's ability to interact effectively.

SS. SS began participating in the intervention program when he was 9;6. The semester studied was his third semester in the intervention. SS was a Caucasian male. He was given a medical diagnosis of high functioning autism at 5;0, and this diagnosis was later confirmed by a neuropsychologist when SS was 8;0. At the time of this study, the school multidisciplinary education team had given SS an educational classification of LI, believing that a classification of autism was inappropriate, at least in the academic setting. SS was homeschooled until he was 8;3 (2nd grade), when he was enrolled in a public school setting. At that time the school multidisciplinary team completed testing and provided him with an educational classification of LI. At the time of the study, SS was receiving special education services for math, reading, and writing. He spent part of his school day in a mainstream classroom, and part of the school day in a self-contained resource classroom. SS was receiving speech and language services for fluency, articulation, and language (topic maintenance and syntax) at the time of the study.

SS demonstrated difficulty in each of the CCC-2 subtests. SS's core language score on the CELF-5 was at the 2nd percentile. According to the school SLP, SS was motivated to interact socially, though he demonstrated difficulty modifying his behavior for different settings, especially social settings. According to the SLP, SS was observed to demonstrate difficulty appropriately responding to conversational topics introduced by peers and other conversational partners. He also had problems interpreting nonverbal responses of conversational partners. Also reported by his school SLP, SS demonstrated difficulty interpreting facial expressions and vocal and nonverbal cues. SS was reported to demonstrate increased difficulty both understanding and producing prosodic cues according to his SLP. The SLP also reported that while SS seemed to have a basic awareness of his deficits, he continued to demonstrate with difficulties in social situations. SS's social communication and emotional intelligence deficits impacted his ability to communicate effectively, thus making him a candidate for participation in this study.

**JS.** JS began participating in this intervention when she was 5;11. The semester studied was her third semester in the intervention. She was a Caucasian female. Before she was 3;0, JS was diagnosed with a developmental delay<sup>2</sup>. Soon after this, JS was diagnosed with LI and attention deficit hyperactivity disorder. She began attending a special needs preschool at the age of 4;0. JS participated in an evaluation at this preschool, which revealed that she had significant delays in social cognition, social and emotional development, and receptive and expressive language. At the time of the current study, her diagnosis was LI concurrent with attention deficit hyperactivity disorder. Throughout this study, JS was receiving resource services for reading. She also received speech and language services for articulation and language.

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<sup>2</sup> The school district had a policy that all children who qualified for early intervention services through a program called "Kids on the Move" received an initial diagnosis of developmental delay.

According to her scores on the CCC-2, JS demonstrated weakness with nonverbal communication, social relations, syntax, semantics, and coherence. JS's core language score on the CELF-5 was at the 7th percentile. The school SLP reported that JS had limited attention and difficulty focusing on topics. The SLP also reported that JS had a limited vocabulary, which affected her ability to participate in conversations with peers and other conversational partners. According to the SLP, JS also demonstrated difficulty responding to questions consistently and appropriately. In addition, the school SLP reported that JS had difficulty taking the perspective of others, predicting outcomes (such as making a prediction as to what will happen in a story or how the story will end), and comprehending and producing the parts of a narrative (such as the setting, problem, solution, etc.). The school SLP also reported that JS had difficulty participating in peer interactions, and that JS demonstrated difficulty with recognizing emotions experienced by peers and conversational partners, and inferring emotions experienced by others in different situations. These deficits in social communication were negatively impacting her ability to communicate, which qualified her for participation in this study.

**MG.** MG began participating in the study when she was 11;0. This was her first semester in the social communication intervention. MG was a Caucasian female. MG was diagnosed with specific learning disorder and LI. Throughout her schooling, MG had switched between enrollment in mainstream classrooms with pull-out resource and a cluster classroom for children with learning disabilities. At the time of the study, MG was in a 5th grade mainstream classroom. She was also receiving resource services in her classroom. MG received speech and language services for language and social communication.

MG demonstrated difficulty on multiple subtests on the CCC-2, including speech, semantics, coherence, nonverbal communication, and social relations. MG's core language score

on the CELF-5 was at the 4th percentile. The school SLP reported that MG demonstrated appropriate basic conversational skills, but she began to dominate conversations as they increased in complexity beyond her current level of functioning. The SLP reported that MG used this behavior to compensate for her lack of higher level conversational skills. Her school SLP also reported that MG lacked the social inferencing skills required in higher level conversations. According to her school SLP, MG was also reported to demonstrate difficulty participating in social situations, as she had difficulty understanding social cues, nonverbal communication, and the emotions of her conversational partners. When compared to other children by her teacher, MG was described as demonstrating immature language skills (especially in regards to conversations). These deficits were affecting MG's ability to communicate effectively, so she qualified to be included in the present study.

### **Procedure**

This thesis is part of a larger study that took place in a local elementary school setting. Each baseline, intervention, and follow-up session was administered by a graduate student from Brigham Young University (BYU) under the supervision of the school's SLP. The goal of the study was to improve emotion understanding of emotion words. The focus of the intervention, however, was on the production of these words. This strategy was based on the work of Paul and Norbury (2012), who suggested that intervention with vocabulary words should be structured to assess comprehension and teach production.

The intervention sessions occurred in two 20-minute segments per week, totaling a minimum of 20 sessions. A pull-out model was used to deliver services. The data analyzed in this study were taken from the third semester of this ongoing social communication intervention program.



**Baseline.** This study was completed using a single subject, multiple baseline design. Participants completed between three and six baseline sessions. The baseline data that are reported in this thesis come from the participants' initial completion of baseline tasks. Once participants established a stable baseline, intervention was initiated. Several tasks were administered throughout these baseline sessions. The baseline task utilized in this study was a retelling of a story from a wordless picture book. In each baseline session, the participant was given a wordless picture book (usually one of the Mercer Mayer Frog Stories; Mayer, 1967-75) and asked to use the pictures from the book to tell the story. During these tasks, the clinician did not provide any prompting or modeling for the child. The child was simply asked to look at each page of the story and tell the clinician the story from these picture cues.

**Intervention.** Participants received 20 intervention sessions each lasting 20 minutes<sup>3</sup>. Intervention sessions were divided into different segments. The first segment consisted of a story sharing activity. The clinician shared a flexible scripted story with the child, with focus on the emotions of characters in each story. The flexibility of the script allowed for children to provide multiple responses in regard to emotion word production. Children who could read were encouraged to read along in the story. During the various events in each story, the clinician and the participant would discuss the emotions of each character. The clinician also used this time as an opportunity to introduce new emotions, and correct emotions that the participants were using incorrectly. One example of a story used in this social communication intervention was *Knuffle Bunny*. In the story sharing segment, the clinician and the child would read *Knuffle Bunny* together. The clinician asked questions from a script to ensure that each participant received the

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<sup>3</sup> JRS completed 21 intervention sessions due to one of the 20 original sessions being cut short for an assembly. That particular session only lasted 10 minutes, so JRS completed an additional session.

same information from the story. After each page of reading, the clinician would ask the participants questions about each character on the page (How does Trixie feel now? How does her daddy feel?), with an emphasis on the emotions these characters were experiencing. The clinician also took this time to correct emotion words that participants were not using correctly (such as saying Trixie was sad when she was actually mad), and introducing new emotions (e.g., embarrassed, guilty).

The second segment consisted of a story enactment activity. The clinician and the child used various toys to re-enact the stories that were shared, again focusing on the emotional content that the characters of the story were experiencing. The clinician used this time to model the discussion and use of emotion words by the characters that they were enacting. The clinician and the participants enacted each story multiple times, which allowed participants the opportunity to take the part of each of the different characters. This also allowed the child the opportunity to utilize the emotion words that had been modeled by the clinician. For the *Knuffle Bunny*, the clinician allowed each participant to choose if they wanted to act the part of the father, the mother, Trixie, or the narrator. After the parts were chosen, the child and the clinician would act out the story. During her dialogue, the clinician would include emotion words and discussion items that were used in the story sharing portion of the intervention. This was used as a model to increase similar behaviors from the participants. After they acted out the story once, the clinician and the participant would change parts. This allowed the participant to imitate the dialogue that the clinician used for those characters. For older children, the clinician allowed them to write a script of what they would say in the enactment using sticky notes. This writing included both the thoughts and the feelings of each character.

The third segment focused on recognition of emotions from wordless picture stories (like those used in the baseline task). Participants were shown a wordless story that was placed in a binder. The clinician instructed the child to look at each picture before starting to tell the story. Each participant was then asked to tell the clinician the best story that they could, as she could not see the pictures. Participants were not given specific instructions regarding what information to include in the story (including description of the emotions felt by the characters). This activity was completed at various points during the intervention to provide children with more exposure to this task and to encourage the spontaneous use of emotion words in similar stories.

The final segment was a journaling activity. At the end of each session, the clinician and the child would go over any emotion words that were used throughout the session. The clinician would then help the child write each of the new emotion words that was used during that session, and the child was encouraged to draw pictures and re-read the journal entry with the clinician to help them remember those words. For example, in the *Knuffle Bunny*, the clinician would have the child add words like *embarrassed* and *guilty* to his/her emotion word list. Participants were then asked to provide a three to four sentence summary of the story for comprehension purposes.

**Follow-up.** At the end of the intervention session portion, participants completed three follow-up sessions using tasks similar to those from the baseline sessions. This was done to determine if the participants' performance on these same tasks increased as a result of the intervention. Again, the wordless picture book task was analyzed in follow-up sessions (Mercer Meyer Frog Stories were also used in these sessions). The number of emotion words that the child used during this task in the follow-up sessions was then compared to the number of emotion words the participants used during this task in their baseline sessions.

## Analysis

Data were collected by watching video recordings from each session, and coding each child's use of emotion words. Coding was completed based on guidelines summarized in the coding manual, which is presented in Appendix A. Coding score sheets were used to allow for consistent analysis of data across participants and examiners (Appendix B). Each video was coded to include what emotion word was used, the emotion category, the category in error (if an incorrect emotion word was used), the type of production that was used, and whether or not the child produced valence errors. Each emotion word used was written exactly as it was produced, and then placed in one of six emotion categories. These emotion categories included happiness, sadness, anger, fear, surprise, and disgust. The type of production was also recorded. These included productions made in response to a question (Q), in response to a cue (C), as an imitation of the clinician (R), or spontaneously (S). Emotions that differed from target emotions were also be coded for valence errors. Data collected from the five participants in this intervention, for this specific study, were analyzed in three ways. First, the data were analyzed to determine if the children's overall use of emotion words in the six major categories increased throughout the intervention. Total number of emotion words used from each category was recorded for each session, and trends were examined to determine if participants' emotion word use increased for each of the different emotions. Data were also analyzed according to accuracy of production. The number of emotion words that were produced incorrectly was noted along with the category in error in order to determine which emotion word categories were being confused and any trends in incorrect emotion word production (e.g., fear being commonly confused with sadness). These data were also analyzed to determine the efficacy of treatment through the examination of the percentage of non-overlapping data (PND). Performance for each participant for each emotion

word category was analyzed through their PND calculations. This was completed by counting the number of intervention sessions in which the child used more emotion words in each emotion word category than they did at the highest point in their baseline sessions. This number was then divided by the total number of sessions, and multiplied by 100. PND scores were compared to norms to determine the effectiveness of treatment for each participant in each emotion word category. Highly effective PND scores were those scores of 90% and above. Moderately effective PND scores were those scores between 70% and 89%. Mildly effective PND scores were those scores between 50% and 69%. Ineffective PND scores were those scores that were less than 50% (Scruggs & Mastropieri, 2013).

### **Reliability**

Videos were coded by one graduate research assistant at BYU. This student participated in the coding of similar data from a different semester of participants in the same study. The student was trained using the coding manual, and watched and coded 10% of an earlier semester of data with two other research assistants. Coding took place in the BYU social communication lab where these recordings are stored and analyzed. Comparisons of each research assistant's coding sheets yielded a 94% overall inter-rater agreement for the coding of emotion words, emotion category, category in error, and type of production. These comparisons also revealed a 97% inter-rater agreement for the correct valence of recorded emotion words.

### **Results**

The productions made by each participant in each of the emotion word categories was coded. Participant performance was examined by emotion word category. Where useful, the data are presented in figures detailing baseline, treatment, and follow-up data.

## **Disgust**

Participants demonstrated variable production of emotion words from the disgust category. Because disgust is a later developing emotion, production of this category was not directly targeted by stories for most participants during this semester of intervention. Because this category was not targeted, gains were not expected. ALK was not observed to make any productions from the disgust category. JS made one production from the disgust emotion word category in one intervention session. SS made two productions from the disgust emotion word category during one intervention session. JRS was observed to make productions from the disgust emotion word category more frequently with one production in one baseline session, two productions in one intervention session, and one production in two other intervention sessions. MG made the most productions from the disgust emotion word category. These productions included one in one baseline session, nine in one intervention session, eight in one intervention session, five in one intervention session, and one in two different intervention sessions. A table with the total number of sessions in which each participant produced emotion words from each emotion word category is presented in Appendix C.

## **Contempt**

Contempt was an emotion word category that was not targeted, but was noted due to the fact that participants were observed to occasionally produce words in this category. Most productions of contempt were used by the children to express feelings of dislike about therapy or therapy tasks, or to talk about a character disliking a particular event or object. The use of productions from this emotion category were highly variable, with few productions being observed. Due to these reasons, a figure was not included for this emotion category.

## **Happiness**

Happiness is an early developing emotion. As such this was the category with which most participants had the most success. All participants demonstrated good knowledge of the category of happiness before beginning the intervention. For this reason, words in this category were coded but are not examined for analysis.

## **Sadness**

Figure 1 indicates emotion word production in the category of sadness. Sadness is another early developing emotion word category, and thus most participants were also observed to make gains in this emotion category. According to their PND scores, treatment of sadness was considered moderately effective for MG (85%) and ALK (80%). Treatment was mildly effective for JS (65%) and JRS (57%) based on their PND scores. SS received an ineffective PND score for sadness (40%) because of his variable production of emotion words from the sadness category during intervention tasks. ALK and JS were observed to have increased sadness emotion word productions from baseline to follow-up sessions. SS maintained his use of productions from the sadness category, while JRS and MG both demonstrated with decreased productions from the sadness emotion word category from baseline to follow-up sessions.

## **Fear**

Figure 2 presents the production of emotion words from the fear category. Treatment was mildly effective for ALK (60%) and MG (50%) based on their PND scores. According to their PND scores, treatment was ineffective for JRS (19%), JS (35%), and SS (25%). ALK and MG made increases in their use of productions from the fear emotion word category from baseline to follow-up sessions. SS maintained the ability to produce emotion words from the fear emotion word category from baseline to follow-up sessions. JS was not observed to use productions from

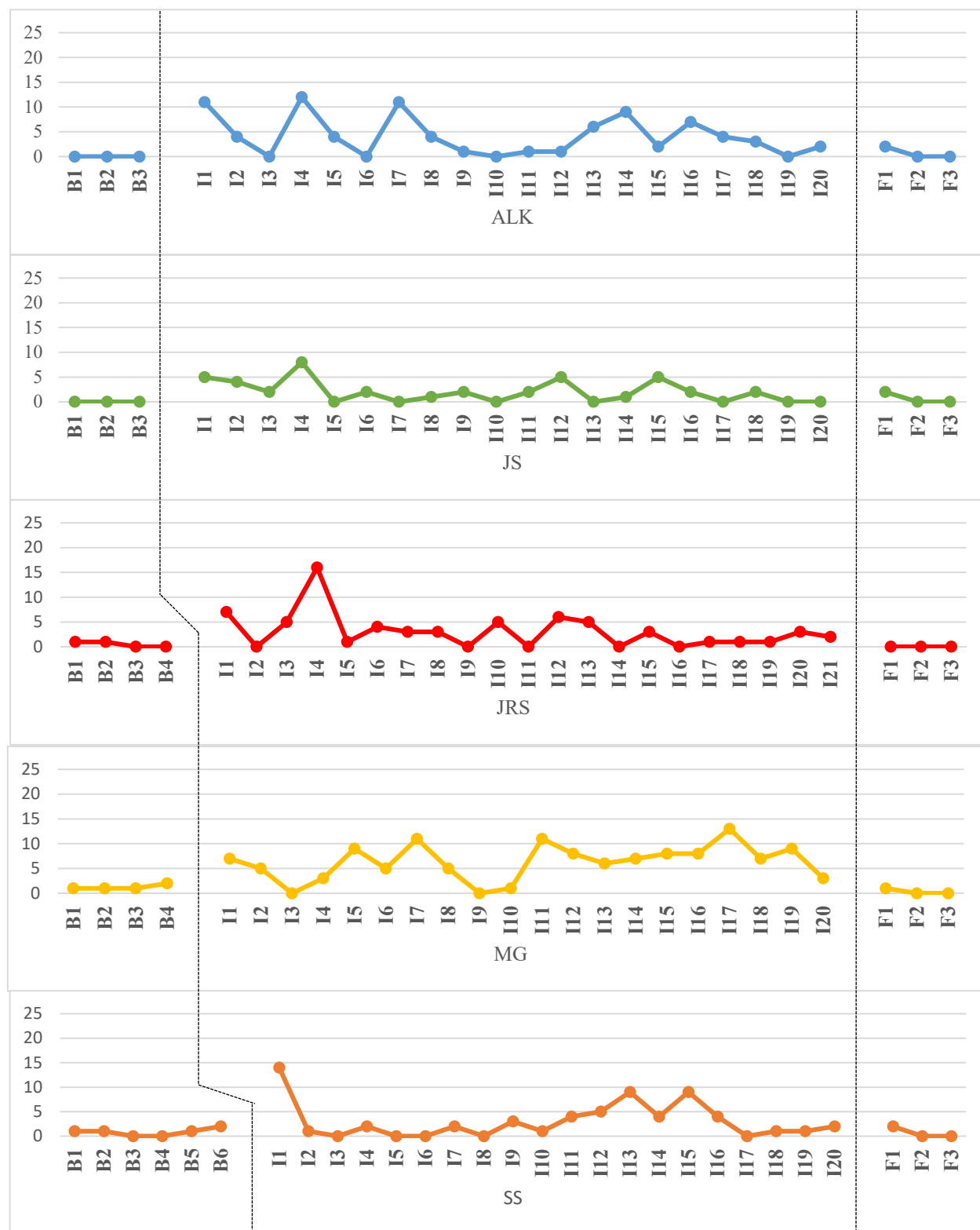


Figure 1. Production of emotion words from the sadness category. Productions are included for each participant for each session completed. B= Baseline, I= Intervention, and F= Follow-Up.



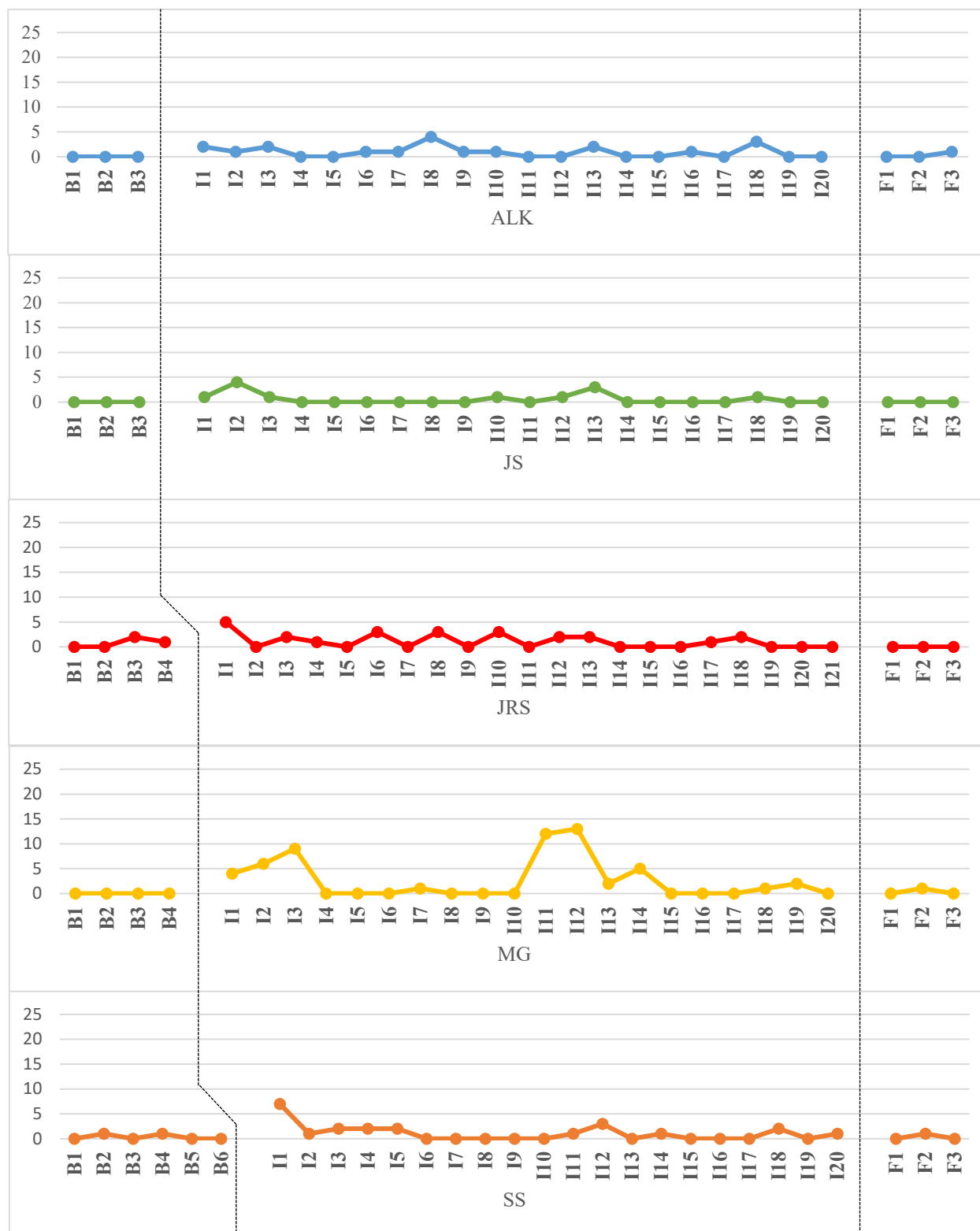


Figure 2. Production of emotion words from the fear category. Productions are included for each participant for each session completed. B= Baseline, I= Intervention, and F= Follow-Up.

the fear emotion word category in either baseline or follow-up sessions. JRS was the only participant who showed a decrease in his use of emotion words from the fear category from baseline to follow-up sessions.

### **Anger**

Figure 3 presents the total number of emotion word productions for the emotion category of anger. PND scores for anger were considered ineffective for all five participants. JS received the highest PND score for anger (45%). This score was still considered ineffective. PND scores for JRS (33%), ALK (25%), SS (10%) and MG (40%) were also considered ineffective. JS was the only participant that was observed to increase in her production of words from the anger emotion word category from baseline to follow-up sessions. JRS and MG were observed to maintain their production of emotion words from the anger category. SS and ALK decreased in productions of the anger emotion word category from baseline to follow-up sessions.

### **Surprise**

Figure 4 represents the total emotion word productions for the surprise emotion word category. JRS received a PND score that was moderately effective (71%) for the emotion category of surprise, while ALK's score was mildly effective (65%). Treatment for the emotion category of surprise was ineffective for JS (15%), SS (30%) and MG (30%). JRS, MG, and SS were all observed to make increases in their use of emotion words from the surprise emotion word category from baseline to follow-up sessions. ALK and JS were not observed to make productions from the surprise emotion word category in either baseline or follow-up sessions.

### **Type of Productions**

All baseline and follow-up productions were coded as spontaneous productions as participants were not instructed to use emotion words during this task, specifically. During

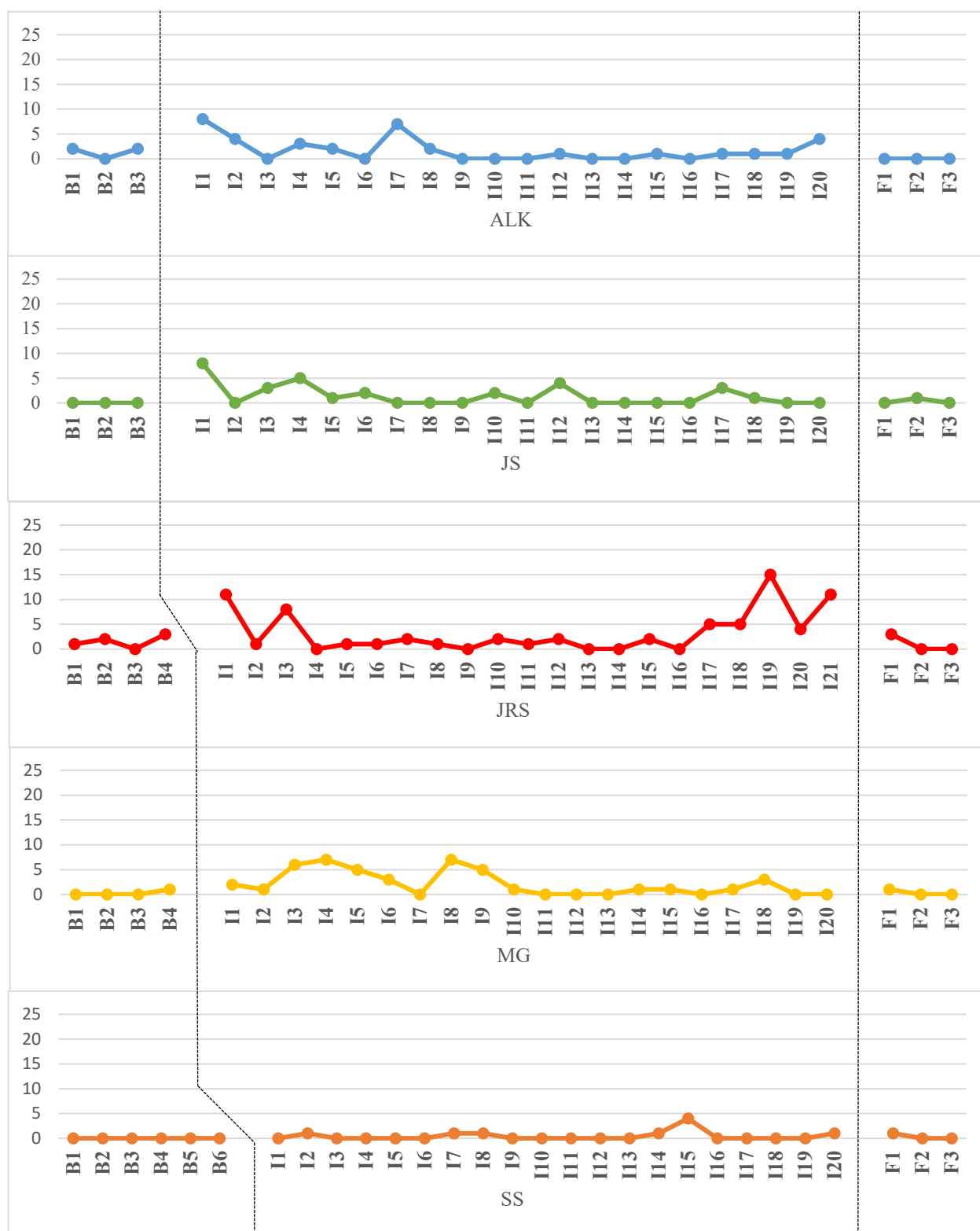


Figure 3. Production of emotion words from the anger category. Productions are included for each participant for each session completed. B= Baseline, I= Intervention, and F= Follow-Up.

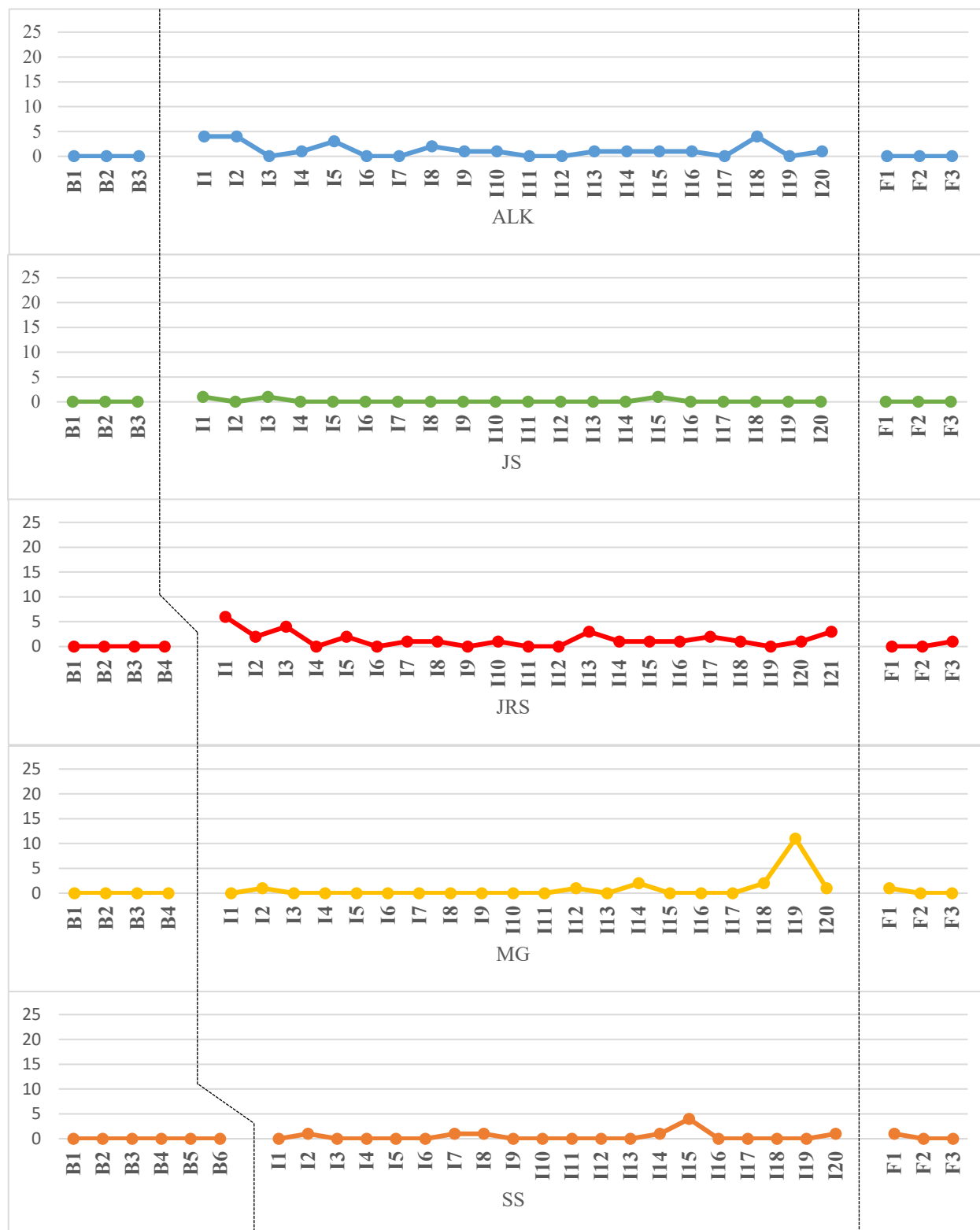


Figure 4. Production of emotion words from the surprise category. Productions are included for each participant for each session completed. B= Baseline, I= Intervention, and F= Follow-Up.

intervention sessions, ALK, JRS, SS, and MG more frequently produced emotion words in response to cues and in response to questions. When JS participated, she also produced emotion words in response to cues and in response to questions. JS was also observed to make many spontaneous emotion word productions, especially when telling personal stories or talking about her dislike of therapy and tasks. JRS was observed to make spontaneous productions in eight intervention sessions, while ALK made spontaneous productions in nine intervention sessions and SS used spontaneous productions in only six sessions. MG produced spontaneous productions in the most intervention sessions (16). An examination of the percentage of productions for all of the production categories for the before mentioned 16 sessions yielded that the percentage of productions from other categories (production in response to cues and productions in response to questions) were still higher than the percentage of spontaneous productions made by MG. JS was observed to make spontaneous productions in 13 sessions, and for three of these sessions her spontaneous productions were 50% or more of the productions made in those sessions. Participants rarely produced repetitions throughout this study. JRS made a production as a repetition in one intervention session, while both JS and SS each made productions as a repetition in two intervention sessions. MG made productions as a repetition in three intervention sessions, and ALK made the most productions as a repetition with these productions being made in five different intervention sessions. Appendix D includes charts of production types utilized by participants in each session.

### **Valence Agreement**

Each participant was observed to make at least one valence error throughout the intervention. Both ALK and JS made one valence error in one session. ALK produced happiness instead of anger, and JS produced sadness instead of happiness. JRS made two valence errors in

two different sessions, which included happiness instead of anger once and happiness instead of fear once. MG made four valence errors in four different sessions. These errors included happiness instead of sadness twice, sadness instead of happiness once, and fear instead of happiness once. SS made the most valence errors with six valence errors in four different sessions. His errors included happiness instead of anger three times, happiness for sadness twice, and anger instead of happiness once. In one session SS was observed to produce a valence percentage of 67%. This low percentage can be explained by the fact that in that session, SS only produced three total emotion words. Since one of those productions included an anger instead of happiness valence error, SS's valence percentage was greatly impacted for that session. Valence percentages were 90% or greater for all other sessions for all of the participants other than what has been mentioned. Participants presented with 100% accurate valence percentages in most sessions. Table 2 shows percentage of valence correctness for each participant per session.

Table 2

*Valence Percentages in Intervention Sessions*

Participants	Session Number																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>JRS</b>	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	90	100	100	100
<b>ALK</b>	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	92
<b>SS</b>	94	100	67	100	100	100	100	100	100	100	100	94	96	100	100	100	100	100	100	100	100
<b>JS</b>	100	100	100	100	100	100	100	100	100	100	100	94	100	100	100	100	100	100	100	100	100
<b>MG</b>	100	100	100	96	100	95	100	100	100	100	100	94	96	100	100	100	100	100	100	100	100

**Discussion**

Numerous studies have been completed to delineate the deficits in social communication experienced by individuals with LI. With respect to emotional competence, these deficits include: the ability to recognize emotions on faces (Merkenschlager et al., 2012), the ability to

interpret emotion conveyed by prosody (Fujiki et al., 2008), the ability to infer emotion from situations (Ford & Milosky, 2003), and the ability to dissemble emotions (Brinton et al., 2007; Brinton et al., 2015). The current study was completed in an effort to evaluate a treatment method designed to improve the production of emotion words in five children with LI.

This study was one part of a larger research project being used to examine the effectiveness of a social communication intervention in treatment of participants identified with LI. The goal of this particular study was to determine if the production of emotion words increased during and after intervention. Participants completed 20 intervention sessions focused on emotion word content in stories. For three participants (ALK, SS, and JS), this was their third semester completing the intervention. This was JRS's second semester, and MG's first semester. This data came from the third semester that this social communication intervention was being implemented. The results for each individual participant are discussed, followed by conclusions, limitations, and suggestions for future research.

### **Emotion Word Production by Participants**

**JRS.** This was JRS's third semester in the intervention program. JRS's production of emotion words was sporadic. However, JRS did relatively well with surprise, producing a PND of 71%, indicative of moderate effectiveness. JRS was also observed to produce emotion words from the surprise category during one follow-up session, which indicated that JRS was beginning to understand this later developing emotion word category.

JRS received a PND score that was mildly effective for one other emotion word category, sadness, but his PND scores for the other categories were considered ineffective. In general, the intervention did not appear to be effective. JRS exhibited mild behavior problems and resistance to attending language intervention sessions. He often expressed a desire to stay in class and

return to class early. The school SLP and graduate student clinician addressed such behaviors by explaining to JRS that he would have to stay in speech longer if he did not complete his work. JRS was easily redirected, but his behaviors persisted across the intervention. These behaviors likely impacted his performance in this study. JRS was the oldest participant and had already completed a semester in the treatment. His performance showed a notable drop off from his first semester (see Dixon, 2015). His behavior and performance may have been an indication that he was dissatisfied with the intervention tasks, the clinician, or coming to intervention in general. It is of note that JRS demonstrated behavior difficulties in other academic areas beyond these language intervention sessions as was reported by the school speech language pathologist and his classroom teacher.

It was of note that most of the JRS's production of emotion words were made in response to questions or in response to cues. He occasionally utilized spontaneous reductions, and he was not observed to use repetition. JRS also made errors in three intervention sessions. These errors included using sadness for anger twice, happiness for fear once, happiness for anger once, and fear for anger once. He produced two valence errors in two different intervention sessions. Given his age (11;3 years), these errors were surprising, and an indication that continued work on these categories was warranted.

**ALK.** This was ALK's third semester in the intervention program. During two different baseline sessions, ALK was observed to utilize productions from the anger category twice. She was observed to produce an emotion word from the happiness category once in one session. ALK's production of emotion words during the current semester suggested that her performance was relatively stable. Overall, ALK received PND scores that suggested that the intervention was at least mildly effective for all but one emotion word category (anger). This indicates that ALK



made gains from her participation in the intervention program. ALK was observed to make errors in 3 sessions. She produced surprise instead of fear twice, happy instead of surprise once, and happy instead of angry once (which was also considered a valence error). This was the only valence error which ALK produced.

In the follow-up sessions for current semester, ALK was observed to produce emotion words during two of the three sessions. The number of emotion words produced in these sessions was limited. ALK's drop off in performance could be explained, in part, by the nature of the follow-up task. ALK was not provided any directions during the follow-up sessions for this task other than to tell the story that was depicted by the pictures. ALK was able to produce significantly more emotion words when provided with the cues and directions during the intervention sessions. ALK's performance on follow-up tasks thus may not have been representative of her true abilities.

**SS.** This was SS's third semester in the intervention program. Due to high frequency use of emotion words during the baseline, SS produced PND scores that indicated ineffective treatment for all emotion word categories. He was observed to have variable use of emotion words from different emotion word categories. SS was observed to make most productions in response to questions or in response to cues, with an occasional spontaneous production. SS made eleven errors in six sessions as well as six valence errors, thus indicating that the production of these words was still relatively challenging.

SS was usually happy and willing to participate, but his performance from session to session could be highly variable. This was indicated by his performance during intervention, which included some surprising spikes in performance. This variability was also observed during this semester's follow-up sessions, with seven emotion word productions in the first

session, followed by one in the second and zero in the third. It was often difficult to determine the source of variability, however, it is possible that he responded better to the different books.

**JS.** This was JS's third semester in the intervention program. In the original baseline sessions, JS did not produce any emotion words. This indicated that JS began this study with limited understanding and use of emotion words. JS's emotion word productions during the current semester of intervention were likely skewed due to her behavioral problems. JS was resistant to participate in most sessions throughout the intervention. At times she even refused to complete treatment tasks, especially the story reading and discussion task. The clinician and school SLP implemented a variety of behavioral management strategies during JS's sessions. One such strategy included allowing JS to provide a pictured face card to match the emotion that characters in stories were feeling rather than providing a verbal label of the emotion. Only verbal responses were coded for consistency of the study. Thus, this modification impacted JS's emotion word totals. Of note was the fact that JS produced more productions from the emotion category of contempt than any of the other participants. These productions were made as JS frequently expressed her dislike of therapy tasks and participation. Other participants were observed to make few productions in this category. According to JS's classroom teacher and the school speech language pathologist, JS presented with behavior difficulties in all academic areas at the time of the intervention. Her resistance to participate and perform was not exclusive to language intervention, but was being noticed by her teachers and school personnel in general.

Although dealing with the challenges describe above, JS received a PND score that was considered mildly effective for one emotion word category, sadness. It was interesting that JS was observed to produce emotion words in two of three follow-up sessions. Although relatively small, these increases suggested that JS was beginning to generalize her use of emotion words.

**MG.** This was MG's first semester of intervention. Despite this fact, MG was observed to use emotion words in each of her baseline sessions. MG also produced emotion words in all three follow-up sessions. Her use of surprise during one follow-up session suggested an increased understanding of a more complex emotion category. MG was usually well-behaved throughout therapy sessions. She was eager to participate in every task that was presented. MG was even observed to request to stay longer in the therapy session on many occasions. Since this was MG's first semester in the ongoing study, MG was presented different books than the other participants. She was also more excited to participate in the new activities. These variables could explain differences in MG's totals from those of other participants.

MG received PND scores that were at least mildly effective for two emotion word categories. MG made the most productions in response to questions or in response to cues. She occasionally utilized spontaneous productions. MG made the most errors of any participant (15 in 10 sessions), which could possibly be explained by the fact that she was in her first semester of intervention. MG was observed to use simpler emotion words when the target was a more complex emotion word category. In the later sessions after receiving training, MG began producing more complex emotion words in place of simple emotion word category targets (e.g., surprise for sadness and disgust for fear). This observation suggests that she was beginning to understand and experiment with the use of words from complex emotion word categories. MG was observed to make four valence errors in four sessions.

### **Conclusions**

The purpose of this study was to evaluate the efficacy of an intervention to improve the production of emotion words by five children with LI. Targeted emotion categories included *sadness, anger, fear, and surprise*. Four of the five participants were observed to make some

gains from this intervention. Treatment was moderately effective for JRS, ALK, and MG in at least one of the targeted emotion word categories. JRS, ALK, MG, and JS also had PND scores that were mildly effective in some of the emotion categories. SS was the only participant that had PND scores that were ineffective for every emotion word category. Most productions were observed in response to questions or in response to cues, which indicates that participants benefit from increased support when discussing and producing emotion words.

### **Limitations**

One major limitation that can be observed with this study was that each story used during intervention elicited specific types of emotion word productions. Use of a single story during a session was necessitated by the relatively short length of each session (20 minutes). This was problematic, however, due to the fact that not all emotion word categories were represented by all stories, and thus emotion words from those categories were not usually produced during that session. This resulted in variability from session to session in emotion word production for each category.

The baseline and follow-up tasks presented another potential limitation. The insignificant increase of emotion word use in follow-up sessions suggested that the task did not elicit performance that was indicative of the true gains that participants made in response to the intervention. It is possible that the relatively flat production of emotion words seen in follow-up sessions was not due to the participants' lack of understanding of emotion words, but rather their lack of interest in the task that they were being asked to complete.

A final possible limitation influencing the participants' use of emotion words was variability in the amount of support provided by the clinician. The graduate student clinician for this semester provided a significant amount of modeling of emotion word use, and thus she did

not ask as many questions or provide as many cues to elicit target emotion word production in comparison to the graduate student clinicians from earlier semesters of this intervention program. It is also likely that time restraints (due to the short nature of the session and the need to finish the story) had an effect on the amount of support offered by the clinician, as modeling emotion words was often faster than providing cues or asking questions for a targeted emotion word.

### **Future Research**

Due to limited published studies examining possible gains from social communication interventions, especially those that focus on emotional intelligence, future research in these areas is warranted. While results from this intervention were variable, participants generally made gains from their participation in this intervention framework. Utilization of a similar intervention framework in the future would be beneficial with a few alterations based on the limitations observed.

First, stories should be chosen to more closely line up with the needs of specific children. Not all of the participants had the same needs, and stories that focused specifically on the emotions that a child did not understand or produce would be most beneficial. Although attempts were made to do this in the current intervention, it was not always possible. Researchers should determine the emotions that are being targeted in each story beforehand and examine the participants' performance using those target emotions while not examining the emotions that were not being targeted. Second, future research should include different baseline and follow-up tasks. This would be beneficial so that performance during follow-up sessions would more fully reflect the true gains made by each participant. Finally, before the clinician begins working with the participants, researchers should provide the clinician with training as to a unified way to

provide modeling while still providing the appropriate amount of scaffolding to encourage emotion word productions from participants.

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APPENDIX A:  
Coding Manual (Mansfield, 2013)

Emotion Word Production 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. "I hate the sandwich.", 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 that 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, then 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 (e.g., “He fell in the water, he is not smiling, he looks \_.”) or gestural/visual cues (e.g., pointing to a frowny face) 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 (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-** An emotion that is right in the context of the story and is used appropriately is considered correct. An emotion that is not appropriate in the context is considered incorrect
  - += **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 Instructions

- Code the Following
  - Specific names for emotions (e.g., sadness, happiness, anger, etc.)
  - Adjective forms of emotion words (e.g., excited, scared, annoyed, etc.)
  - The verbs like, love, and hate
  - Words describing facial expressions associated with specific emotions (e.g., “She feels frowny” Or “That’s a scary face”).
  - Verb Forms of emotion words that are produced in a way to elicit emotion (e.g., to excite, to surprise, to frighten, etc.)
  - Child’s response is phrased as “feels \_\_\_” or when the child answers the question “how does he feel?”
- Do not code the following:
  - Adjectives describing actions or appearances (e.g., funny, cute, silly, weird, etc.)
  - Expletives and interjections (e.g., Whoa! Hey! Dang it, etc.)
  - Child’s response is phrased as “is \_\_\_” or “in \_\_\_”
  - Apologies and “sorry”
  - 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 words compiled by Johnson-Laird and Oatley (1989).

## References

Johnson-Laird, P.N., & Oatley, K. (1989). The language of emotions: An analysis of a semantic field. *Cognition and Emotion*, 3, 81-123.

Mansfield, R.C. (2013). *Outcomes of an emotion word intervention for children*. (Master's thesis). Brigham Young University, Utah. Retrieved from: [etd.lib.byu.edu](http://etd.lib.byu.edu).



APPENDIX C:  
Frequency of Use for Each Emotion Word Category

*Number of sessions (baseline, intervention, and follow-up) emotion words were produced, per emotion word category, per participant.*

Participant	Emotion Word Category					
	Happiness	Sadness	Anger	Fear	Surprise	Disgust
JRS	21/27	17/27	19/27	11/27	16/27	4/27
ALK	21/26	17/26	14/26	12/26	13/26	0/26
JS	19/26	14/26	10/26	7/26	3/26	1/26
SS	24/29	20/29	15/29	13/29	7/29	1/29
MG	22/27	23/27	15/27	11/27	7/27	6/27



APPENDIX D:  
Tables of Percentage of Production Types of Emotion Words

Table D-1

*Percentage of Productions Made in Response to Questions per Intervention Session*

Participants	Session Number																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>JRS</b>	53	83	58	95	71	67	45	82	100	88	78	65	69	34	71	75	100	100	74	63	86
<b>ALK</b>	62	53	100	76	77	75	39	50	55	0	75	23	65	93	80	60	78	65	0	67	
<b>SS</b>	61	91	33	58	100	50	73	80	100	63	85	100	68	70	60	64	0	78	84	88	
<b>JS</b>	25	30	33	71	33	31	50	67	100	50	17	36	57	100	70	17	43	100	67	0	
<b>MG</b>	60	72	57	48	85	67	88	92	64	33	71	73	78	63	70	94	69	80	90	58	

Table D-2

*Percentage of Productions Made in Response to Cues per Intervention Session*

Participants	Session Number																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>JRS</b>	38	0	42	5	14	33	45	9	0	12	11	31	31	33	29	13	0	0	26	27	14
<b>ALK</b>	24	35	0	20	15	25	61	43	36	100	25	69	35	0	20	20	11	24	80	33	
<b>SS</b>	20	0	67	42	0	50	11	0	0	25	15	0	25	30	35	27	0	22	16	12	
<b>JS</b>	64	60	50	15	0	31	0	0	0	50	0	28	43	0	20	33	14	0	0	0	
<b>MG</b>	20	22	29	36	10	24	0	0	0	67	13	15	22	26	20	30	19	0	13	42	

Table D-3

*Percentage of Spontaneous Productions per Intervention Session*

Participants	Session Number																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>JRS</b>	3	27	0	0	14	0	10	9	0	0	11	4	0	33	0	12	0	0	0	10	0
<b>ALK</b>	14	6	0	4	8	0	0	0	9	0	0	8	0	0	0	20	0	6	20	0	
<b>SS</b>	19	9	0	0	0	0	16	20	0	0	0	0	0	0	5	9	0	0	0	0	
<b>JS</b>	11	10	8	14	67	38	0	0	33	0	83	36	0	0	10	50	43	0	33	0	
<b>MG</b>	20	6	14	16	0	9	12	8	36	0	13	12	0	11	10	6	8	20	7	0	

Table D-4

*Percentage of Productions Made as a Repetition per Intervention Session*

Participants	Session Number																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>JRS</b>	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>ALK</b>	0	6	0	0	0	0	0	7	0	0	0	0	0	7	0	0	11	5	0	0	
<b>SS</b>	0	0	0	0	0	0	0	0	0	13	0	0	7	0	0	0	0	0	0	0	
<b>JS</b>	0	0	8	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	100	
<b>MG</b>	0	0	0	0	5	0	0	0	0	0	3	0	0	0	0	0	4	0	0	0	

APPENDIX E:  
Table of Errors Made, per Participant

Participant	Session	Emotion Category Produced	Emotion Category Targeted
JRS	Intervention 1	sadness	anger
JRS	Intervention 1	happiness	anger
JRS	Intervention 1	fear	anger
JRS	Intervention 18	happiness	fear
JRS	Intervention 21	sadness	anger
ALK	Intervention 2	surprise	fear
ALK	Intervention 2	surprise	fear
ALK	Intervention 15	happy	surprise
ALK	Intervention 20	happy	angry
JS	Intervention 1	anger	fear
JS	Intervention 1	happy	surprised
JS	Intervention 1	happy	surprised
JS	Intervention 2	sadness	fear
JS	Intervention 12	anger	sadness
JS	Intervention 12	anger	sadness
JS	Intervention 12	sadness	happy
JS	Intervention 14	sadness	surprise
JS	Intervention 18	sadness	anger
SS	Intervention 1	happiness	anger
SS	Intervention 1	happiness	anger
SS	Intervention 1	fear	anger
SS	Intervention 1	fear	anger
SS	Intervention 1	sadness	anger
SS	Intervention 1	sadness	fear
SS	Intervention 3	anger	happiness
SS	Intervention 4	fear	anger
SS	Intervention 4	happiness	anger
SS	Intervention 7	sadness	anger
SS	Intervention 12	happiness	sadness
SS	Intervention 13	happiness	sadness
SS	Intervention 16	sadness	anger
MG	Intervention 1	sadness	fear
MG	Intervention 2	sadness	surprise
MG	Intervention 2	sadness	surprise
MG	Intervention 4	sadness	happiness
MG	Intervention 6	happiness	sadness
MG	Intervention 7	sadness	surprise
MG	Intervention 11	sadness	fear
MG	Intervention 11	sadness	fear
MG	Intervention 12	happiness	sadness
MG	Intervention 12	sadness	surprise
MG	Intervention 13	fear	happiness
MG	Intervention 14	surprise	sadness
MG	Intervention 14	disgust	fear
MG	Intervention 19	sadness	surprise
MG	Intervention 19	sadness	surprise

APPENDIX F:  
Table of Percentage of Correct Usage of Emotion Words

Table F

*Percentage of Correct Usage of Emotion Words, per Participant, per Session*

Participants	Session Number																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>JRS</b>	91	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	90	100	100	95
<b>ALK</b>	100	88	100	100	100	100	100	100	100	100	100	100	100	100	90	100	100	100	100	92	
<b>SS</b>	83	100	67	89	100	91	100	100	100	100	100	94	96	100	100	91	100	100	100	100	
<b>JS</b>	86	90	100	100	100	100	100	100	100	100	100	68	100	67	100	100	100	80	100	100	
<b>MG</b>	93	89	96	96	100	95	94	100	100	100	92	92	96	93	100	100	100	100	93	100	

## APPENDIX G: Annotated Bibliography

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

### **Purpose**

This article presented the objective for social communication interventions. Adams also discusses the connections between social interaction, social cognition, pragmatics, and language processing, and the interaction of deficits in each of these areas. Adams argues that these areas make up the global concept of social communication.

### **Method**

Researchers created a framework with which to create an intervention that could address deficits in all four social communication deficit areas. Researchers used these four areas to develop a social communication intervention. These included social communication adaptation, social flexibility, metapragmatic therapy, and language processing therapies. Social communication adaptation was the area that was examined in relation to the social interaction aspect of the framework. To address social cognition, researchers investigated the participants' social flexibility. Researchers used metapragmatic therapy with participants to address the pragmatics area of the framework, and a set of language processing therapies to address the language processing area of the framework.

### **Results**

Social communication adaptation strategies involved examining the child's environment and frequent communication partners. Adaptations that were needed for the child to achieve successful communication were then made. Social flexibility behaviors included increasing empathy, inference, and other abstract categories such as metaphors and hidden meanings. Metapragmatic therapy focused on addressing pragmatics at the level of putting pragmatic skills into practice. Finally, language processing therapies were implemented to address deficits in language structure, such as grammar and word-finding difficulties. Variants of tasks in these four areas were determined to be helpful in creating a successful social communication intervention.

### **Conclusions and Relevance**

This study provides a framework for social communication intervention. Further research needs to be completed to determine the effectiveness of implementing social communication intervention programs for children with disabilities. This article is relevant to the current work because this research was implemented to determine the effectiveness of a social communication intervention in reducing deficits demonstrated by children with LI, specifically in the area of emotion understanding.

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

### **Purpose**

The purpose of this study was to determine the effectiveness of a social communication intervention for children with pragmatic language impairment. Performance was compared to children receiving intervention using traditional treatment methods.

### **Method**

Participants included 88 children diagnosed with pragmatic and social communication needs. Participants were randomly assigned to either participate in the social communication intervention (while stopping other treatment) or continued usual treatment methods in their school settings.

### **Results**

Researchers found that scores on the CELF-4 before and after the study were not significantly different between the experimental and control groups. Testing did reveal a significant difference in social communication outcomes, with teachers and parents of children in the social communication intervention group reporting higher gains for their children. Children in the social communication treatment group also performed significantly better on measures of conversation taken by the researchers.

### **Conclusions and Relevance**

At the end of the study, significant differences in favor of the social communication intervention group were observed in the Targeted Observation of Pragmatics in Children's Conversation instrument, the Pragmatics Rating Scale, the parent reported outcome, and the teacher reported outcome. Thus, researchers found that although social communication intervention did not appear to impact structural scores over regular intervention, it did improve the social communication abilities of participants as determined through informal measures. This study is relevant to the current work because it provides evidence of the successful implementation of a social communication intervention.

Bishop, D. V. M. (2003). *Children's Communication Checklist-2 (CCC-2)*. San Antonio, TX: Pearson Education, Inc.

### **Purpose**

The CCC-2 is a standardized test that is used to identify children with pragmatic and speech and language impairment. This test has also been used in the identification of children with autism spectrum disorder.

### **Method**

The CCC-2 can be used with children between the ages of 4;0 and 16;11. Adults who have regular contact with the child complete a caregiver response form that is then scored. The checklist consists of 70 items.

## Results

Questions 1-50 are used to determine the child's communication deficits. Items 51-70 are used to determine the child's communication strengths.

## Conclusions and Relevance

The CCC-2 is useful in both clinical and research situations. This assessment can be used in conjunction with other assessments to aide in the clinical decision making process. Current levels of functioning along with areas that need treatment or further assessment are easily identified by this assessment. This test is relevant to the current work due to its use in identifying participants with LI. This method can also be used throughout multiple semesters to document progress.

Brinton, B., Fujiki, M., Hurst, N. Q., Jones, E. R., & Spackman, M. P. (2015). The ability of children with language impairment to dissemble emotions in hypothetical scenarios and natural situations. *Language, Speech, and Hearing Services in Schools, 46*, 325-336. doi:10.1044/2015\_LSHSS-14-0096

## Purpose

The purpose of this study was to examine the ability of children with LI to dissemble emotions in response to social situations when compared to typically developing children.

## Method

Participants included twenty-two children with LI between the ages of 7;1 and 10;11 and their typically developing age-matched peers. Participants completed two tasks. The first was a series of 10 hypothetical situations in which a gender neutral character should dissemble an emotion for social purposes. Each scenario was designed to elicit one of five emotions (happiness, sadness, fear, disgust, or anger). Participants were asked a comprehension question, a question to label the emotion being targeted, and two dissemblance questions. The second task presented participants with four opportunities to dissemble emotion in a natural situation. Three of these scenarios were low cost (meaning there was little personal consequence to the participant). The last scenario was high cost (response to the situation had a personal effect on the participant).

## Results

Both groups of participants demonstrated difficulty with the dissemblance task, though typically developing children determined that dissemblance was necessary significantly more often than children with LI when completing the hypothetical scenario task. Participants with LI did not perform significantly worse than typical children in the low cost natural scenario dissemblance task. For the high cost naturally occurring dissemblance task, typical children were able to appropriately dissemble emotions more than children with LI ( $p=.058$ ).

## Conclusions and Relevance

Children with LI demonstrated more difficulty with the dissemblance of emotions, however, differences in the naturalistic setting were more nuanced than in the hypothetical scenario task. This study is relevant to the current work because children

with LI demonstrate increased deficits with dissemblance of emotions, which is affected by deficits in emotion understanding. This study aims to improve emotion understanding, and thus deficits in emotion dissemblance should be improved.

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

### **Purpose**

The purpose of this study was to determine the negotiation skills of children with LI in a group setting.

### **Method**

Participants include six children with LI, along with six age-matched children and six language skill- matched children. Each group consisted of three participants. Children were unfamiliar with the other participants in their group. Before the negotiation task, participants completed two other tasks in which they earned a total of three poker chips. Participants were then presented with snacks that ranged in price from 4 to 9 poker chips. Children were instructed to discuss and choose one snack that they would have to pay for together. The examiner stayed in the room, but she worked on other tasks while the children discussed. The child with LI was always seated between the other two children in the group. Children that were assertive with their opinion were considered other-transforming. Children that were compliant with the opinion of the other group members were considered self-transforming.

### **Results**

A one-way analysis of variance (ANOVA) was completed. Difference between the two typically developing group members were not statistically significant. Children with LI consistently produced less negotiation utterances than other group members, but their performance was highly variable. Children with LI also produced fewer communicative acts labeled as other-transforming than did children in the other groups. Analysis of data also indicated that typically developing children from both groups produced significantly used significantly more negotiation utterances than children with LI.

### **Conclusions and Relevance**

The snack selection task was a motivating task for all participants. Subjects from each group were observed to pay attention and stay on task during this activity. Most negotiation strategies that were utilized by group members were verbal, though some gestures were noticed. The length of the negotiation interaction was variable between groups. Children with LI were observed to participate less in the negotiation process overall than children in the other groups. Researchers thus argued that children with LI demonstrated difficulty utilizing verbal skills to participate in conversations and interactions with their peers. This article is relevant to the current work because this work targets improvements in social communication skills.



Brinton, B., Fujiki, M., Montague, E. C., & Hanton, J. L. (2000). Children with language impairment in cooperative work groups: A pilot study. *Language, Speech, and Hearing Services in Schools, 31*, 252-264. doi:10.1044/0161-1461.3103.252

### **Purpose**

The purpose of this study was to determine the effect that social-behavior profiles had on children with LI and their ability to complete cooperative group work.

### **Method**

Participants included six different children with LI. Each participant was involved in four different cooperative play work groups. Each group consisted of two different typically developing children and one of the participants. Typical children only participated in one group. During the first interaction, the three children in the group were not assigned roles. Each member of the group was assigned a specific role in the interaction during additional interactions. This allowed the participant with LI to play a meaningful role in the group interaction. Interactions were examined to determine the success of the interaction of each group (how well they worked together, their ability to complete a task). Social profiles were obtained through questioning of the child's teacher.

### **Results**

The success of the group interactions was highly variable. Researchers found that social profiles were indicative of the child's willingness to work with other group members. Participants who scored high in the areas of aggressive and withdrawn behaviors demonstrated more difficulty in group interactions than did children more moderate levels of these behaviors.

### **Conclusions and Relevance**

Children with LI may need a variety of supports and accommodations in order to successfully participate in group interactions. This study is related to the current work because as children with LI make improvements in their emotion understanding abilities, then it is likely that the ability of these children to effectively participate in groups would increase.

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. doi:10.1044/0161-1461/97/2801-0003

### **Purpose**

The purpose of this study was to compare the topic maintenance skills of children with LI to typically developing age-matched subjects and typically developing language skill-matched subjects. The goals of this study were to discover difficulties demonstrated by children with LI and to determine a more effective way to assess and treat topic evaluation.

### Method

Participants included ten children with LI, ten typically developing age-matched children, and ten typically developing language skill-matched children. All participants worked with the same examiner. The examiner initiated conversation and provided feedback once the topic was introduced. Two different categories of topics were utilized. These included the introduction of an object and the introduction of an event. Participants were provided with three topics in each category. The first two minutes of every interaction was analyzed. Each interaction was transcribed verbatim. Utterances were coded as maintaining if they acknowledged or repeated content from the topic introduction. They were coded as a new topic introduction if they provided a new conversation topic. Utterances were also divided into appropriate and inappropriate categories.

### Results

The number of utterances produced by each participant was calculated. These calculations included all types of utterances. Differences in the number of utterances produced were not significant due to a wide variability in production of all groups. In regards to both topic maintenance, children with LI were more likely to produce inappropriate responses than children in the other groups. Children with LI were also observed to produce more utterances than children in other groups in these area overall, though there was significant variability between participants in all groups.

### Conclusions and Relevance

Performance in this study was highly variable amongst participations of all groups. Overall, children with LI were observed to provide the most responses while children with typically developing language skill-matched children provided the least responses. Researchers argue that variability in responses could have been observed due to the fact that the children were unfamiliar with the examiner, or that the topics introduced were not interesting to the participants. While children with LI produced more utterances overall, they also produced more inappropriate utterances. This study is relevant to the current work due to the importance of emotion understanding to conversation maintenance. As the emotion understanding abilities of these participants improve, their ability to relate to and converse with other people appropriately should also improve.

Brinton, B., Robinson, L. A., & Fujiki, M. (2004). Description of a program for social language intervention: "If You Can Have a Conversation, You Can Have a Relationship." *Language, Speech and Hearing Services in Schools*, 35, 283-290. doi:10.1044/0161-1461(2004/026).

### Purpose

This study was completed to determine the effectiveness of an individualized treatment plan for conversational skills of one adolescent male that had been diagnosed with LI.

### Method

This article presented a case study of one male participant. The participant was identified with LI at 4;5. Intervention was initiated before the participant was 5;0. The participant received special classroom services, and participated in a speech and language

intervention program at a university clinic. In the early years, targeting speech and language skills improved many deficits experienced by the participant as was noted through formal and informal measures (discussions with parents and teachers). By the time the participant was in elementary school, researchers noted that he demonstrated difficulty when participating in social interactions. By the time the participant was in middle school, he had no reciprocal friends. Treatment for this individual participant was then altered to target deficits in conversation and peer interactions. Treatment focused on recognizing the needs of conversational partners and balancing participation in conversation through conversational turns. Two activities were utilized in treatment. In the first, the participant was asked to observe video clips from movies and various role play scenarios. The purpose of this task was to highlight social and emotional information that was critical for successful conversations. In the second task the participant watched role play scenarios dealing with situations that he had experienced in his own life. These videos were then analyzed to determine the most successful way to deal with these situations.

### **Results**

The participant was willing to take part in all treatment tasks. The participant demonstrated difficulty completing the tasks, however, especially identifying the intents of the characters. After six months of participation in this treatment program, the participant's mother reported generalization of conversational strategies to the home environment. After nine months of participation in this program, the participant was able to successfully complete treatment tasks with 80% accuracy in the clinical setting.

### **Conclusions and Relevance**

Researchers concluded that the intervention was effective, and that it provided strategies to help the participant navigate and successfully participate in peer interactions. A limitation that was noted was the amount of cognitive effort required for the participant to utilize these strategies. The participant continued in treatment even after this nine-month period, with focus on different types of conversational interactions (dating, etc.) This study is relevant to the current work in that it illustrates the fact that treatment of specific deficits in children with LI can be a time consuming process. Intervention programs may need to be implemented over the case of months and even years for gains to be documented. This is the case with the current study in that this is the third semester for many participants, and gains have been difficult to make up to this point.

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. doi:10.1044/1092-4388(2007/055)

### **Purpose**

The purpose of this study was to examine the ability of children with LI to determine when an emotion should be dissembled as compared to typically developing children.

### **Method**

Participants in this study included 19 children with LI and 19 typically developing age-matched children. Each participant was presented with 10 hypothetical situations that were experienced by a gender neutral character (Chris). Emotions targeted included happiness, sadness, fear, anger, and disgust. After the presentation of the scenario participants were asked a series of questions. These questions included a comprehension question, an emotion labeling questions, a dissemblance question, and a question regarding what the character's parent would want him/her to do.

### **Results**

All participants were able to answer the comprehension questions without difficulty. In regards to the emotion labeling question, participant responses were variable. Valence errors were noticed from some participants. In response to the dissemblance question, typically developing children provided more dissemblance responses. For the question about what the parent would want the character to do, statistically significant differences were noted for the different emotion categories.

### **Conclusions and Relevance**

Dissemblance tasks were difficult for all participants. Certain emotions were also more difficult than others in regards to the dissemblance task. Researchers concluded that the children with LI may not fully comprehend the impact that failing to dissemble emotions can have on relationships. This would suggest that children with LI have delayed emotion understanding when compared to their typically developing peers. This study is relevant to the current work due to the fact that the current work aims at improving emotion understanding. Thus, as emotion understanding is improved, children with LI should better comprehend the importance of dissemblance.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82, 405-432. doi:10.1111/j.1467-8624.2010.01564.x.

### **Purpose**

Social and emotional learning (SEL) is "the process of acquiring core competencies to recognize and manage emotions, set and achieve positive goals, appreciate the perspectives of others, establish and maintain positive relationships, make responsible decisions, and handle interpersonal situations constructively. The goal of SEL programs is to see an increase in self-awareness, self-management, social awareness, relationship skills, and responsible decision making. The purpose of this study was to examine implementation of SEL programs in schools, and determine the effectiveness of these programs.

### **Method**

Four different search strategies were used to examine both published and unpublished studies regarding these programs. These included computer searches of databases, cross referencing reference lists, manual searches of journals, and searches of organization

websites. Studies that were included were published in English before December 31, 2007. They emphasized the development of one or more SEL skill, targeted students between the ages of 5 and 18 without learning deficits, included a control group, and included information so that effect sizes could be calculated.

### **Results**

Researchers found 213 school based SEL programs with 270,034 students that met the inclusion criteria. After reviewing these studies, researchers determined that participants in SEL programs demonstrated significantly improved social and emotional skills, attitudes, behaviors, and academic performance.

### **Conclusions and Relevance**

Relationships and emotional processes affect how and what we learn, so deficits in these areas must be addressed. Many students lack social emotional competencies and become less connected to school as they progress from elementary school to middle school to high school. This lack of connection also affects their academic performance, behavior, and health. Developmental research indicates that effective mastery of social-emotional competencies is associated with greater well-being and better school performance, but failure to master social-emotional situations leads to personal, social, and academic difficulties. Children who have participated in SEL programs have been found to make improvements in these areas. This study is relevant to the current work because emotion understanding is an important subcategory of SEL programs. Children with LI must demonstrate emotion understanding before they can successfully participate in such a program.

Elias, M. J., & Weissberg, R. P. (2000). Primary prevention: Educational approaches to enhance social and emotional learning. *Journal of School Health, 70*, 186-190.  
doi:10.1111/j.1746-1561.2000.tb06470.x

### **Purpose**

The purpose of this article is to present the purpose of the Collaborative to Advance Social and Emotional Learning (CASEL) and promote its use in developing successful SEL programs.

### **Method**

CASEL provided a framework for the needs at the classroom, school, and district levels in order to implement successful SEL programs. These suggestions were research based. Programs were to be well planned and utilize lessons focusing on four areas. These included: life skills and social competencies; health promotion and problem behavior prevention skills; coping skills, conflict resolution, and social support for transitions and crises; and positive, contributory service. CASEL suggested that SEL programs and activities should be integrated into and coordinated with the normal curriculum of a classroom and school.

## Results

Five different successful methods of SEL programs were presented and described. The first program was the social decision making/ social problem solving system. This program that was created to improve social competence and life skills while preventing violence, substance abuse, and problem behaviors. The second program was the responsive classroom approach, which was created to focus on successful interpersonal interactions within the classroom. The third program was the Seattle social development program. This program focused on teaching skills while altering the norms for behaviors in the classroom. The New Haven school development program was the fourth program, which focused on allowing parents and educators to share responsibilities of making decisions for the school. The fifth program was the emotionally intelligent parenting program, which promoted the idea that parents treat their children in the way that they expect school teachers and staff to treat their children. These were five examples of successful SEL programs.

## Conclusions and Relevance

Researchers argue that there has been a recent increase in promoting mental health for school aged children. These researchers argue that a focus on SEL programs can help to achieve increased mental health for these children. Implementation of such programs is increasing in many schools. This article is relevant to the current work because emotion understanding is a key component in SEL programs. Deficits in emotion understanding must be addressed before and individual can participate in such a program. SEL programs would be beneficial for children with LI once their underlying deficits have been addressed due to the fact that many individuals with LI demonstrate with mental health problems.

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. doi:10.1044/1092-4388(2003/002)

## Purpose

The purpose of this study was to determine the ability of children with LI to infer emotions for different situations.

## Method

Participants included 12 children with LI and 12 typically developing age-matched children. Participants were asked to label line drawings of facial expressions depicting 1 of 4 emotions (happy, surprised, sad, or mad). They were then asked to provide a verbal response using one of these emotion words when asked to infer the emotion that should be felt from a story depicting a situation. Nine different stories were created for each emotion. Children were asked to infer the emotion that an individual would experience from the situation that was described. This inference task was presented in 1 of 3 possible modalities, including verbal, visual, and combined.

## Results

Children from both groups of participants were able to accurately identify the happy, sad, and mad emotions from facial expressions. Both groups of participants showed some variability with the labeling task. 10 of 12 typically developing participants and 8 of 12 children with LI labeled surprise correctly. A 2x3x4 ANOVA revealed that typical children performed significantly better than children with LI at inferring emotion. Scores from presentation in the combined audio and visual modality were significantly better than scores from the audio or visual alone modalities. Analysis also showed that the identification of the emotion happy was statistically significant compared to the identification of mad or surprised.

## Conclusions and Relevance

Researchers make the case that children with LI differ from their typically developing peers in regard to their social communication abilities. Results from this study revealed that while children with LI did not have difficulty identifying emotions, they had difficulty processing emotions in social situations. When children with LI made errors, they were also more likely to make valence errors than their typically developing peers. This study is relevant to the current work because a social communication intervention with a focus on emotion understanding addresses deficits in emotion inferencing abilities.

Ford, J. A., & Milosky, L. A. (2008). Inference generation during discourse and its relation to social competence: An online investigation of abilities of children with and without language impairment. *Journal of Speech, Language, and Hearing Research, 51*, 367-380. doi:1092-4388/08/5102-0367

## Purpose

The purpose of this study was to compare the ability of children with LI to make emotion inferences during a task of discourse comprehension to that of their typically developing peers.

## Method

Participants included 16 children with LI and 16 typically developing children. Participants were in preschool, and completed seven tasks, including: vocal response time measure, inferencing, receptive language measure, nonverbal cognitive measure, confrontational naming measures, drawing task, and situations that cause emotions. This study focused on the inferencing task. Each participant watched a series of 36 narrated videos focusing on specific emotions. Eighteen stories were considered filler stories, and 18 stories were considered experimental stories. There were six stories for each emotion of happy, sad, and afraid. Children were asked to determine if a facial expression that was presented matched or did not match the emotion that was presented.

## Results

A one-way ANOVA showed a statistically significant difference in language skills between groups. Typically developing children responded significantly faster than children with LI in the matched emotion category. The children in the typically developing group were observed to lag in their decision when the facial expression did

not match the emotion that was conveyed. Children with LI did not produce a difference in response time regardless of whether the facial expression matched the emotion expressed on the narrated video.

### **Conclusions and Relevance**

Based on the results of the study, researchers argue that typically developing children are able to infer the emotion being presented in the comprehension task, while children with LI were not making these inferences. This study is relevant to the current work because the current work is focused on improving emotion understanding abilities in children with LI. As improvements in emotion understanding are made, improvement in the ability to complete emotion inferencing tasks should also improve. Emotion inferencing is important for successful interaction with peers and others.

Fujiki, M., Brinton, B., & Clarke, D. (2002). Emotion regulation in children with specific language impairment. *Language, Speech, and Hearing Services in Schools, 33*, 102-111. doi:10.1111/j.1467-8578.2011.00507.x

### **Purpose**

The purpose of this study was to compare the emotion regulation skills of children with language impairment to those of typical age-matched peers. The authors provide a definition from Thompson (1994), which states that emotion regulation is: “the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one’s goals.” They then state that emotion regulation “is not a single behavior, but a collection of processes and strategies.” This means that not only does emotion regulation involve controlling emotions, but also avoiding, displacing, transforming, minimizing, inhibiting, and intensifying those emotions. Not only does emotion regulation affect the types of emotions felt, but also their intensity and duration. Thus, emotion understanding is an important component of emotion regulation.

### **Method**

Researchers compared the emotion regulation abilities of 41 children that had been identified as having LI without any other confounding disabilities to 41 typical, age-matched peers. Each child was initially assessed using the Emotional Regulation Checklist (ERC). The ERC was used to determine whether the child was able to express emotions appropriately as well as their ability to adapt emotional responses to different situations. Both positive and negative aspects of emotion regulation were explored for each student. The ERC was completed by a teacher that knew the child well.

### **Results**

An ANOVA was completed for gender (male, female), group (LI, typical), and age (6-9, 10-13) as variables. Differences in gender and group were statistically significant. It was found that females produced higher scores than males, and typical children produced higher scores than children with LI.



### Conclusions and Relevance

Language skills are necessary to learn emotion regulation. As parents discuss emotions and how to regulate them, this facilitates emotion understanding and emotion regulation. Emotion regulation and language abilities have an effect on each other, and thus it is not surprising that children with LI also demonstrate difficulties with emotion understanding and emotion regulation. Fujiki, Brinton, and Clarke argue that impaired language and impaired social communication interact to affect the social outcomes of children with LI. This study is relevant to the current work because it provides data to suggest that children with LI demonstrate statistically significant deficits in emotion regulation.

Fujiki, M., Brinton, B., Isaacson, T., Summers, C. (2001). Social behaviors of children with language impairment on the playground: A pilot study. *Speech & Hearing Services in Schools*, 32, 101-113. doi:10.1044/0161-1461(2001/008)

### Purpose

The purpose of this study was to observe the social skills of children with LI in a less-structured setting outside of the classroom.

### Method

Participants included eight children with LI and eight age-matched peers. Participants were video recorded for 45 minutes during their morning and lunch recesses. Children wore a small microphone disguised as a beaded necklace. Children were encouraged to play as they normally would, and that the necklace would be retrieved after recess. Video segments were coded and grouped into the subcategories of peer interaction, adult interaction, withdrawal, aggression, victimization, and other.

### Results

Statistically significant differences were observed for the subcategories of peer interaction and withdrawal. Typically developing children were observed to interact with their peers significantly more than children with LI (80% compared to 54%). Children with LI were observed to engage significantly more in withdrawn behaviors than typically developing children (42% compared to 17%). Significant differences were not observed for any of the other subcategories.

### Conclusions and Relevance

Children with LI engage in more withdrawn behavior and fewer peer interactions than typically developing children. This study is relevant to the current work because it is likely that interactional skills suffer as children participate in fewer social interactions.

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

### **Purpose**

The purpose of this study was to observe the ability of children with LI to produce validation comments. These included positive statements, sharing information, and asking peers questions.

### **Method**

Participants included four children with LI chosen from a possible eight children identified to qualify for participation. A case study format was utilized. Three cooperative learning sessions were utilized to collect baseline data. Intervention consisted of 40 fifteen minute sessions for three children and 20 thirty minute sessions for one child. Validating comments were those that encouraged further interaction with peers. Negative comments were those that were overtly aggressive. Session types included group instruction, novel peer play, and review. Comments were analyzed during the novel peer play task. Interactions were video recorded and transcribed.

### **Results**

One participant made notable increases in the ability to produce validating comments. Two children were observed to make modest increases. The last participant demonstrated with performance that was unchanged from baseline to intervention sessions.

### **Conclusions and Relevance**

Increases in the production of validating comments were variable for all participants. Researchers argued that the 10-week intervention was not long or intense enough to produce statistically significant results in regards to the social difficulties experienced by children with LI. Further research was suggested by researchers in order to determine the most successful way to implement meaningful social interactions for children with LI. This study is relevant to the current work because improvements in emotion understanding can lead to improvements in social interaction.

Fujiki, M., Brinton, B., Morgan, M., & Hart, C. H. (1999). Withdrawn and sociable behaviors of children with specific language impairment. *Language, Speech, and Hearing Services in Schools, 30*, 183-195. doi:10.1044/0161-1461.3002.183

### **Purpose**

The purpose of this study was to examine withdrawal and sociability in children with LI and typically developing age-matched children.

### **Method**

Participants included 41 children with LI and 41 typically developing age-matched children. All participants were in one of two age groups (5-8 years or 10-13 years). The Teacher Behavior Rating Scale was completed by the participants' teachers. Teachers were provided with written instruction regarding how to complete the testing instrument. Behaviors that were examined through this instrument included withdrawal (solitary passive withdrawal, solitary active withdrawal, and reticence) and sociability (likability, prosocial).

### Results

According to teacher ratings, children with LI demonstrated more reticent behaviors than typically developing children. Boys with LI were also observed to engage in statistically significant levels of solitary active withdrawal behaviors when compared to girls or typically developing children. Children with LI also demonstrated significantly poorer likeability and prosocial ratings than peers.

### Conclusions and Relevance

This study was completed by relying on teachers' judgment and understanding of withdrawn and sociable behaviors. This study is related to the current work because children with LI demonstrated more withdrawn and less sociable behaviors. The social outcomes are likely related to social communication deficits frequently seen in children with LI.

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

### Purpose

The purpose of this study was to compare emotion regulation, language ability, and reticence for children with LI when compared to typically developing age-matched peers.

### Method

Participants included 43 children with LI and 43 typically developing age-matched children. Two age ranges were used, included 5 to 8 years and 9 to 12 years. The teachers of each participant were asked to complete the Emotion Regulation Checklist to provide a measure of the participants' emotion regulation abilities and the Teaching Behavior Checklist as a measure of the presence of reticent behavior. The Comprehensive Assessment of Spoken Language (CASL) was also administered to provide a measure of each participant's language ability.

### Results

A two-way multivariate analysis of variance (MANOVA) was completed, and the difference between performance based on group (LI or typical) was statistically significant. A regression analysis was completed, and it was determined that emotion regulation and language scores were responsible for over 40% of the variance observed in reticence scores.

### Conclusions and Relevance

Reticence is a common deficit demonstrated by children with LI. Researchers argue that the amount of reticence a child demonstrates has not been observed to vary with the severity of LI. They instead suggest that reticence may be related to emotional competence. This study was used to demonstrate that there is indeed a relationship between emotion regulation and reticence. This study is relevant to the current work because of the connection between emotional competence and reticence. The relationship

between improvements in emotion understanding and reticent behavior could be examined to determine if improvements made in emotion understanding had an effect on reticence.

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

### **Purpose**

The purpose of this study was to examine the ability of children with LI to understand emotion from a narrative passage.

### **Method**

Participants included 19 children with LI and 19 age and gender matched typical children. Children were asked to listen to a short passage that was read to express a specific emotion and then they were asked which emotion was being conveyed.

### **Results**

Researchers found that there was a statistically significant difference in the typical children's ability to identify emotion compared to the ability of children with LI to identify emotion. Researchers also found statistically significant differences in the emotion being identified with happiness being easiest followed by anger, sadness, and fear being the most difficult. Fujiki et al also observed that not only were children with LI more likely to confuse emotions, but they were also more likely to make valence errors (confusing a negative emotion for a positive emotion) than their typically developing peers.

### **Conclusions and Relevance**

After reviewing the results of the study, Researchers determined that the deficits children with LI demonstrated were not indicative of difficulty with prosody in general. The participants instead demonstrated difficulty recognizing prosodic cues that indicated emotions that were being conveyed. This study is relevant to the current work because of the deficits that participants demonstrated with emotion understanding. If the emotion understanding ability of the participants could be improved, then it is possible that their ability to understand prosodic cues in narratives would also improve.

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

### **Purpose**

The purpose for this study was to determine the effectiveness of treatment of children with LI by completing a review of research studies between 1975 and 2008.

### **Method**

An ad hoc committee was created to complete the review. The committee was given the task to review the use of social interaction (or social communication) in the treatment of children with LI. To be included, studies had to be completed between 1975 and 2008, be published in a peer reviewed journal, be written in English, and answer one or more of eleven research questions.

### **Results**

Eight studies were found that met the criteria for consideration in the review. Only three of the research questions were answered by these eight studies. These questions included: “Is there an effect of conversation/ discourse treatment on language use in social interactions?”, “Is there an effect of pragmatic treatments on language use in social interactions?”, and “Is there an effect of narrative discourse treatment on language use in social interactions?”

### **Conclusions and Relevance**

Further studies need to be completed in order to determine the true effectiveness of social communication interventions in the treatment of LI. This study is relevant to the current work due to the fact that the current work examines the effectiveness of a social communication intervention in the treatment of emotion understanding deficits in children with LI.

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)

### **Purpose**

The purpose of this study was to determine the social language abilities of children with LI when compared with typically developing age-matched peers. The severity of LI demonstrated by participants was also examined in an attempt to relate social behavior deficits to severity of LI.

### **Method**

Participants included 41 children with LI and 41 typically developing age-matched children. Withdrawal (solitary active withdrawal, solitary passive withdrawal, and reticence) and sociable (prosocial and likeability) behaviors were examined. Teachers of each participant were asked to complete the Teacher Behavior Rating Scale. Responses from this instrument were examined to determine the social behaviors of each participant.

### **Results**

Children with LI were determined to present with more reticence and solitary passive withdrawal than typically developing children. In regards to sociable behaviors, children with LI were rated with less prosocial and likability behaviors. The participants with LI were then divided into groups based on the severity of their LI. Analysis of withdrawn behavior revealed that girls with severe LI were more likely to demonstrate solitary passive withdrawal behaviors. No other comparisons were significant. Children with less

severe LI demonstrated higher levels of both types of sociable behaviors than did children with more severe LI.

### **Conclusions and Relevance**

Researchers conclude that severity of LI was related to severity of sociable deficits, but not the level of withdrawn deficits. This study is relevant because the current work is examining the effectiveness of a social communication intervention in addressing emotion understanding. One of the outcomes of the current study is to examine the impact upon withdrawn and sociable behaviors.

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.

### **Purpose**

The purpose of this study was to compare the self-esteem of children with LI to that of typically developing age-matched children.

### **Method**

Participants included 46 children between the ages of 6 and 9 years (23 children with LI and 23 typically developing children), and 34 children between the ages of 10 to 13 years (17 children with LI and 17 typically developing children). Each participant completed the Self-Perception Profile as a measure of self-esteem. Domains that were included in this instrument included scholastic competence, athletic competence, behavioral conduct, social acceptance, and physical appearance.

### **Results**

A MANOVA was completed for each age group. No statistically significant difference was observed in the way that children with LI in the younger group viewed themselves compared to typically developing children. In the older group, children with LI viewed themselves more negatively in regards to scholastic competence, social acceptance, and behavioral conduct than did typically developing children.

### **Conclusions and Relevance**

Researchers argue that self-esteem is important in helping children regulate behavior and adjust to environmental demands. They make the case that children with LI need to have positive self-esteem to motivate them to complete tasks and regulate their behaviors. The case is made that deficits in self-esteem may both cause and result from reticent behaviors. An argument is made that increased self-esteem may be a key component in the successful treatment of LI. This study is relevant to the current work because of the importance of emotion understanding in increasing the self-esteem of children with LI. As these children make improvements in deficit areas, their self-esteem will improve. The current work aims at improving participants' emotion understanding through a social communication intervention.

Leonard, L. (2014). *Children with specific language impairment* (2nd ed.). Cambridge, MA: MIT Press.

### **Purpose**

The purpose of this book is to present and discuss the most current information regarding LI as a disorder along with the specific deficits and challenges demonstrated by individuals within this population.

### **Summary**

Leonard begins by providing introductory information regarding language deficits. He then goes on to explain and discuss the fact that LI is a deficit not only in English but in every language throughout the world. This means that if a child presents with LI in English, they will also demonstrate LI when utilizing any other language. Next, Leonard addresses the possible causes of LI, including genetic causes along with environmental causes. Specific deficits experienced by individuals with LI are then discussed. These include deficits of: linguistic knowledge, processing, and grammar. Leonard finishes his book by discussing the current ways in which LI is being treated in the clinical environment.

### **Relevance**

This book is relevant to the current work because it discusses specific deficits that are demonstrated by individuals with LI. The deficits discussed (such as deficits in processing and linguistic knowledge) must be understood and addressed for individuals with LI to be successful in the current intervention program.

Merkenschlager, A., Amorosa, H., Kiefl, H., & Martinius, J. (2012). Recognition of face identity and emotion in expressive specific language impairment. *Folia Phoniatica et Logopaedica*, 64, 73-79. doi:10.1159/000335875

### **Purpose**

The purpose of this study was to observe the ability of children with LI to recognize the emotion being presented by way of facial expression as compared to typically developing children.

### **Method**

Participants included 24 children with LI and 24 typically developing age-matched children. Recognition of facial expressions was examined by presenting participants with a test movie. Participants were then asked emotion recognition questions based on the movie they had watched. Participants were asked to choose one of five scenes from the movie, pick a line drawing that matched the emotional expression from the scene, and then label the emotion either verbally or through pantomime. Thirteen test movies were used.

### **Results**

Children with LI performed significantly worse than typically developing children in regards to total errors made in this emotion task.

### **Conclusions and Relevance**

Researchers argue that children with LI demonstrate difficulty interpreting non-verbal information conveyed through facial expressions and gestures. These deficits lead to difficulty in social interactions. This study is relevant to the current work because this thesis is aimed at improvements in emotional competence. This task was also included as part of the social communication intervention that was not analyzed in the current work.

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*, 40-73. doi:10.1097/00011363-200111000-00006

### **Purpose**

The purpose of this article was to determine an effective way to address social communication deficits experienced by school-aged children. The objective of this study was to discover the breadth and depth of change made through intervention, and connecting these changes to the treatment that was provided.

### **Method**

Researchers argue that examiners must create a framework when treating school-aged children with social communication deficits. They must decide what outcome measure that they want to measure, and how and when such measurements will be completed. Social cognition and linguistic abilities must also be considered in such measurements. Four tasks are then presented that could be used to produce different outcome measures. These include: hypothetical tasks, narrative tasks, analog tasks, and direct observation.

### **Results**

Researchers found that hypothetical tasks provide participants with the most amount of structure. Hypothetical tasks were considered effective in eliciting specific responses, but skills developed through this task were unlikely to generalize due to the contrived nature of the task. Narrative tasks were more demanding than hypothetical tasks due to increased processing demands. Narrative tasks were effective in that they allowed clinicians to examine semantics, syntax, and pragmatics. The main limitation with narrative tasks was related to the presence of pictures to aide participants, and the amount of time that narrative tasks required for completion. Analog tasks were tasks that were created by the clinician, but that also dealt with real life situations. Analog tasks were considered effective because of their use of socially significant material, but these tasks do not require the child to participate. Direct observation is used to analyze behavior in authentic social communication interactions. This method was the most naturalistic method introduced. The main limitations observed with this method dealt with difficulty in controlling the situation and collecting data.

### **Conclusions and Relevance**

By using a combination of assessment tasks and data collection, clinicians are able to perform the most efficient assessment and resultant treatment of school-aged children with social communication deficits. Researchers also argue that outcome measures may



differ depending upon the individual being assessed. They also argue that changes in communication throughout the intervention process need to be monitored. This study is relevant to the current work because it discusses the need for constant evaluation of the communication abilities of children with language and social communication disorders using a variety of assessment techniques. As participants make improvements, assessment needs to be continued to determine what should be done to provide the most effective treatment.

Paul, R., & Norbury, C. (2012). *Language disorders from infancy through adolescence: Listening, speaking, reading, writing, and communicating*. St. Louis, MO: Mosby.

### **Purpose**

The Purpose of this book is to provide information regarding the cause, assessment, and treatment of various language disorders experienced by individuals of various ages. The authors make a point to state that there is a lack of agreement regarding these topics in the field due to variable opinions amongst experts.

### **Summary**

The authors begin by giving a general introduction of language disorders. They include a discussion of basic assessment and intervention principles, and then they discuss how these concepts might differ when working with individuals from different populations. The second section of this book is dedicated to the discussion of language disorders in younger children. Assessment and intervention frameworks are provided for children who are not using language yet, who are beginning to use language, and who are developing language. The third section of this book is dedicated to addressing deficits experienced by individuals with learning disabilities. Authors focus on the assessment and treatment skills necessary for school age children with language disabilities. Finally, the assessment and treatment of advanced language deficits is addressed.

### **Relevance**

This book is relevant to the current work because it provides a framework for treatment of language disorders that has been researched and found to be effective. Some of the theoretical concepts that were discussed in the intervention section of this book were utilized in this intervention program.

Saarni, C. (1999). *The development of emotional competence*. New York, NY: Guilford.

### **Purpose**

The purpose of this book was to provide a definition and an outline of skills necessary for the successful development of emotional competence.

### **Summary**

The author begins by discussing the importance of emotional competence for successful social interactions and development. She then goes on to explain that each individual needs to develop emotional competence for future success. The skills that are necessary for developing emotional competence are then outlined. These include: skill 1- awareness

of one's own emotions, skill 2- the ability to discern and understand the emotions of others, skill 3- the ability to use emotion and expression vocabulary, skill 4- empathy, skill 5- the ability to differentiate internal emotional experiences from external expression of emotion, skill 6- the ability to cope with negative emotions and circumstances, skill 7- awareness of communication of emotion in relationships, and skill 8- the capacity for emotional self-efficacy. The author ends her book by explaining some deficits that have been observed in regards to emotional competence.

### **Relevance**

This book is relevant to the current study because it outlines skills that are necessary for the development of emotional competence. Emotion understanding ability is one aspect of emotional competence, and is relevant to many of the skills addressed in this book. As children make improvements in emotion understanding, they are also making improvements in their emotional competence.

Scruggs, T. E., & Mastropieri, M. A. (2013). PND at 25: Past, present, and future trends in summarizing single-subject research. *Remedial and Special Education, 34*, 259-280. doi:10.1177/0741932512440730

### **Purpose**

The purpose of this article was to summarize and present the usefulness of the percentage of non-overlapping data (PND) statistic when compared to other statistics as the optimal measure for the effectiveness of treatment for single-subject studies and meta-analyses.

### **Method**

The authors experimented using four different statistics in an attempt to provide quantitative data for single-subject studies. Statistics that were examined included standardized effect size, regression based effect size, rating scale, and overlapping data.

### **Results**

Researchers began experimenting with the standardized effect size statistic. After testing, they found that this statistic could be easily calculated but was lacking in regards to validity and meaningfulness. The second statistic that was tested was the regression based effect size. Researchers found that this statistic did not accurately represent the abilities of participants due to limitations in applying the statistic to the majority of cases (due to a lack of obvious slope effects) and gaps in time that could not be accounted for (like weekends or absences from treatment). The third statistic that was experimented with was that of a rating scale. Researchers found that they were able to achieve some success with this statistic, though they were unable to create a scale with which they could achieve sufficient inter-rater reliability. The last statistic that was tested was the PND statistic. Researchers found that this statistic was not difficult to calculate, and that the statistic had high reliability. This statistic was also considered meaningful in that behavioral researchers and other readers could easily interpret results using this statistic. The PND statistic was then applied to 68 studies that had been identified as single-subject studies regarding interventions of children with disabilities.

### **Conclusions and Relevance**

Since its introduction, the PND statistic has been used in many single-subject studies. The statistic has also had a significant amount of criticism, especially from people stating that quantitative measures should not be utilized in single-subject studies. Regardless of this criticism, PND is still a widely used statistic. This article is relevant to the current work as the PND statistic will be utilized to explain the effectiveness of treatment for each participant and each emotion word category.

Semel, E., Wiig, E. H., & Secord, W. A. (2013). *Clinical Evaluation of Language Fundamentals* (5<sup>th</sup> ed.). San Antonio, TX: Psychological Corporation.

### **Purpose**

The purpose of this test is to assess the language abilities of individuals between the ages of 3 and 21.

### **Method**

This test consists of 16 subtests that can be administered in different combinations. Each participant completed ten or eleven subtests depending upon their age.

### **Results**

Raw scores are calculated from each subtest. Raw scores are then utilized to determine standard scores, percentile ranks, and confidence intervals for scores.

### **Conclusions and Relevance**

An individual's standard scores on various subtests are compared to norms to determine if individuals present with disordered language abilities. This test is relevant to the current work in that it is used to identify language deficits in children with LI. The Clinical Evaluation of Language Fundamentals 5<sup>th</sup> Edition was administered to each participant in order to support the diagnosis of LI.

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, 173-188. doi:10.1080/13682820500224091

### **Purpose**

The purpose of this study was to examine children with LI and their ability to infer emotions from specific social situations.

### **Method**

Participants included 43 children with LI and 43 typically developing children. These participants were divided into two different age groups, those between the ages of 5 and 8, and those between the ages of 9 and 12. Each participant was asked to examine a series of stories that focused on a specific emotion (anger, fear, happiness, or sadness). Each emotion was depicted in four videos, providing a total of 16 videos for examination. Stories featured a gender neutral character, Chris. After being presented with each story,

participants were asked to determine the emotion that the character was experiencing. Participants were also asked why the character would feel such an emotion, and how that emotion feels for them.

### **Results**

A four-way ANOVA was completed. Statistically significant differences between emotions identified were observed. Happiness was identified most correctly by participants in both groups. The next most frequently identified emotion was sadness, followed by fear and then anger. Older children with LI were more accurate in their completion of the task than younger children with LI. Typically developing children were the most accurate in completing this emotion inferencing task.

### **Conclusions and Relevance**

Researchers suggest that interventions for children with LI should include activities to target the individuals' emotion understanding abilities. This study is relevant to the current work due to the fact that the current work utilized a social communication intervention to target emotion understanding abilities of participants.

Spackman, M., Fujiki, M., Brinton, B., Nelson, D., & Allen, J. (2006). The ability of children with language impairment to recognize emotion conveyed by facial expression and music. *Communication Disorders Quarterly*, 26, 131-143.  
doi:10.1177/15257401050260030201

### **Purpose**

The purpose of this study was to determine the emotion understanding abilities of children with LI, specifically in regards to their understanding of emotion on faces, when compared to typically developing children.

### **Method**

Participants included 43 children with LI and 43 typically developing age-matched children. Two age groups were created, those between the ages of 5 to 8 and those between the ages of 9 to 12. Two studies were completed. In the first, participants were asked to identify emotions shown on photographs of faces. Participants were provided with seven cards representing the emotions of happiness, sadness, anger, fear, surprise, disgust, and I don't know. Cards consisted of a written label and a color drawing to represent the emotion. Children were instructed until they understood how to use the emotion cards. They were then asked to match those cards to the photographs of emotions on faces. The second study required participants to determine the emotion being expressed in an excerpt of music. Participants were asked to identify which emotion (happiness, sadness, fear, anger, I don't know) was being conveyed through the music clip.

### **Results**

A four-way ANOVA was conducted. No significant differences were found between children with LI and typically developing children when identifying the emotions of happiness, anger, sadness, and fear on photographs of faces. Significant differences were

noted in the ability of children with LI to identify the emotions of surprise and disgust as compared to typically developing children. Younger children with LI significantly poorer at identifying anger and surprise than older children with LI. Typically developing children were significantly more accurate in their identification of emotion from music than children with LI.

### **Conclusions and Relevance**

This study was conducted in a way that language requirements were removed in order to look at true emotion understanding abilities of children with LI. Children with LI were able to identify basic emotions, but they demonstrated significant difficulties identifying complex emotions (such as surprise and disgust). Researchers argue that children with LI recognize emotions in a different way than typically developing children. This study is relevant to the current work in that this thesis aims to address emotion understanding deficits in children with LI by providing participants with a social communication intervention with focus emotion understanding.

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

### **Purpose**

The purpose of this study was to examine the ability of a social communication intervention to improve language skills and social interaction for preschool children with disabilities.

### **Method**

Eight children diagnosed with developmental disabilities were included as participants in this study. A multiple baseline study was utilized. Baseline sessions lasted ten minutes. Intervention sessions were completed twice a week, and lasted 25 minutes each. Three components were included during sessions. The first included a planning period, the second included a play session, and the third included a review period. Four social communication skills were targeted. These included: talking to a peer, listening to and responding to what a peer says, using a peer's name, and taking turns with peers.

### **Results**

Six out of eight participants were observed to produce gains in making requests from peers. In regards to verbal requests, six of the eight participants were observed to make modest gains. Nonverbal requests were either maintained or decreased for all participants. A significant increase in use of unique words was also noted for six of the eight participants.

### **Conclusions and Relevance**

Researchers argue that the social communication intervention that was implemented was effective in treating deficits demonstrated by participants. They also point out the fact that while gains were made, this study lacked a natural context due to variables that were

beyond their control which hindered the potential for generalization. This study is relevant to the current work in that it provides an example of the successful implementation of a social communication intervention.

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

### **Purpose**

The purpose of this study was to examine the turn-taking ability of children with disabilities in the context of initiation of and response to peer interactions.

### **Method**

Eight preschool children were included as participants. Children were placed in pairs. Each pairing had one participant with an IEP and one without an IEP. Groups participated in five different dramatic play situations. These included grocery store, doctor, construction, animal doctor, and hair salon. Groups were also introduced to a storybook that outlined the thematic play sequence and models for verbalization during the activity. Participants completed five baseline sessions. Intervention sessions lasted between 20 and 25 minutes, and were completed four or five times per week. This study included three components during sessions. These included a planning period, a play session, and a review period. Four social communication skills were targeted, included: talking to a peer, listening to and responding to what a peer says, using a peer's name, and taking turns with peers.

### **Results**

Each participant increased in their ability to initiate conversations with peers, as was demonstrated by an increase in verbal and non-verbal initiations in all participants. A follow-up session was completed. Gains were consistent in follow-up tasks, but generalization to other settings (specifically the classroom setting) was not observed.

### **Conclusions and Relevance**

This study provides teachers with a basis for involving social communication in the classroom. They also argue that skills targeted in this intervention should be utilized in classroom activities to promote further generalization, and that teacher-mediated intervention is necessary for the successfulness of this generalization. This study is related to the current work in that it provides an example of the successful implementation of a social communication intervention.

Taylor, B (2005). Emotional intelligence: A primer for practitioners in human communication disorders. *Seminars in Speech and Language, 26*, 138-148. doi:10.1055/s-2005-871210

### **Purpose**

The purpose of this article was to outline key aspects of emotional intelligence and suggest a framework for improving emotional intelligence.

### Summary

Six steps were presented to improve emotional intelligence. These included: developing self-awareness and self-regulation, practicing self-awareness, practicing self-regulation, managing emotions, motivating oneself, and developing effective communication skills. Improvements in emotional intelligence were observed to be important in regards to a variety of tasks at work. These included having difficult conversations, discovering details and solutions to conflict, discussing feelings of oneself and others, and feelings of self-esteem and self-worth.

### Relevance

This article is related to the current work because it provides steps for improving emotional intelligence. Emotional intelligence is an important concept for success in future work and career related performance. Children with LI that demonstrate deficits in emotional intelligence, specifically emotion understanding, will benefit in future interactions from improvements in these areas.

Taylor, L. J.; Mayberry, M. T.; Grayndler, L., & Whitehouse, A. J. O. (2015) Evidence for shared deficits in identifying emotions from faces and from voices in autism spectrum disorders and specific language impairment, *50*, 452-466. doi:10.1111/1460-6984. 12146

### Purpose

The purpose of this study was to compare the emotion recognition abilities of children with autism and children with LI through facial and vocal emotion recognition. Researchers believed that though these disorders have many distinctive traits, that individuals with these disorders may demonstrate with similarities in their social communication deficits.

### Method

Twenty-nine children with ASD, eighteen children with LI, and 66 typically developing children participated in this study. The group with ASD was further divided into autism with impaired language (12 participants) and autism with normal language (17 participants). Two modalities were used to present tasks. In the visual version of the task, participants were presented photographs depicting one of six emotions (happy, sad, scared, angry, surprised, or disgusted). For the auditory version of this task, participants were presented with a sentence that portrayed one of the six emotions through the prosodic cues and tone of the voice. Participants were asked to identify the emotion presented in both tasks by matching the stimulus to the cartoon picture of the emotion they felt was being presented.

### Results

All groups demonstrated significantly less ability to correctly identify emotions based on facial expressions. Children with LI and children in the autism with normal language groups were significantly slower at providing an answer than participants in the other groups. Children with LI and children with autism with impaired language score worse than predicted in identifying both simple and complex emotions. Children with autism with normal language performed worse than predicted when identifying complex

emotions. In regards to auditory emotion recognition, participants with LI and participants in both autism groups demonstrated significant impairment in their ability to correctly identify the emotion being targeted.

### **Conclusions and Relevance**

In both tasks, participants in the LI, autism with normal language, and autism with impaired language groups demonstrated significant deficits when compared with their typically developing peers. Children in the autism with normal language group only demonstrated deficits with complex emotions. This study is related to the current work because of its connection to emotion recognition in children with LI. The current study aims to address emotional competence. As such, emotion recognition deficits will improve as emotion understanding improves.

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

### **Purpose**

The purpose of the study was to examine the social knowledge of children with LI in conflict resolution with peer interaction compared to typical children, ages 8-12 years.

### **Method**

Participants included two groups of twelve children (LI or typically developing peers). Hypothetical peer conflict tasks were used to examine responses along with parent and teacher ratings of the participants' social behaviors. Twelve hypothetical situations were presented eliciting responses through both open-ended and forced choice structures.

### **Results**

The group of children with LI performed more poorly in both open-ended and forced choice scenarios. It was found that participants with LI generated fewer prosocial responses regardless of the structure of the scenarios presented. In fact, not only did individuals with LI demonstrate difficulty with selecting prosocial responses regardless of the method of elicitation when compared to typically developing peers, but it was also found that their level of success in choosing prosocial responses was the same regardless of the method of elicitation.

### **Conclusions and Relevance**

Studies show that children with LI demonstrate difficulties with prosocial behaviors (passive, reticent, and withdrawn). They are also less likely to initiate verbal and non-verbal interactions, and they are less responsive to the questions and comments of their peers. Findings from this study suggest that intervention focusing on the development of social communication skills is critical for individuals within the population with LI. This study is relevant to the current work because deficits in emotion understanding can contribute to increased withdrawal and decreased prosocial behaviors. Thus, as children with LI demonstrate with improved emotion understanding, they should also demonstrate improved prosocial behaviors and an increase in their ability to resolve conflicts.