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# The Accurate Productions of Emotion Words During a Social Communication Intervention in Children with Language Impairment

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The Accurate Productions of Emotion Words During a  
Social Communication Intervention in Children  
with Language Impairment

Emily Marie Gibbons

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

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## ABSTRACT

### The Accurate Productions of Emotion Words During Story Enactment Therapy in Children with Language Impairment

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Master of Science

This thesis examines a social communication intervention that targets the emotional competence of children with language impairment (LI). Three elementary school-aged children with LI received twenty, 20-minute intervention sessions over four months. Each intervention session involved a combination of activities targeting emotion recognition and emotion inferencing. The emotion-based word productions were counted and analyzed. Categorized words belonged to the emotional categories of *happiness*, *sadness*, *anger*, *fear*, *surprise*, and *disgust*. The percentage of appropriate usage was calculated to represent how often the participants used each emotion-based word in a semantically correct manner. Emotion word productions that did not match the intended target word were analyzed for valence agreement. Results were variable but two of the participants improved in the percentage of accurate productions in at least one emotional category while one participant did not improve over the intervention. Two of the participants also showed a decrease in the number of valence errors with no notable change in valence errors for the third participant. This suggests that this type of intervention can be effective in improving the use of emotion-based words in children with LI. More research is needed to develop this type of intervention.

Keywords: language impairment, school-age children, emotional competence, social competence, social communication intervention, emotion expression, emotion-based words

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## **Introduction**

Several recent studies have demonstrated that many children diagnosed with Language Impairment (LI) have problems with social communication. Despite these difficulties, there is a paucity of research examining the efficacy of intervention methods created to help these children improve their social communication skills. Thus, there is a need for research investigating the efficacy of intervention programs that target aspects of social communication in children with LI. The purpose of this thesis is to evaluate the efficacy of a story enactment intervention to increase the accurate production of emotion words.

### **Social Communication Problems in Children with LI**

Children with LI have a range of social communication problems. It has been found, for example, that preschool children with LI are more likely to ignore conversational bids from peers and to be ignored by their peers during play interactions (Hadley & Rice, 1991). Examining older children, Bishop, Chan, Adams, Hartley, and Weir (2000) reported that elementary school age children with LI were nonresponsive to both adult and peer solicitations in conversation.

In addition to basic breakdowns in conversational responsiveness, children with LI have also been found to have difficulties with a variety of social communication tasks. For example, several researchers have reported that children with LI have problems accessing (entering) the on-going interactions of peers (Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993; Liiva & Cleave, 2005). Commenting on this difficulty, Liiva and Cleave (2005) noted that children with LI tended to wait for an invitation before joining in play and conversation. If they were not invited, they were not likely to attempt to enter the interaction.

Another basic social communication task that is difficult for children with LI is resolving conflicts. Timler (2008) read short vignettes to children with LI and typically developing

children. The vignettes contained peer conflicts and all participants were asked questions afterward to determine how each child would respond to the conflict. Timler reported, “participants with LI approached conflict situations with a different social knowledge than did the typically developing (TD) group” (Timler, 2008, p. 757).

Horowitz, Jansson, Ljungberg, and Hedenbro (2005) examined naturally occurring conflicts of preschool boys with both typically developing and impaired language skills. The conflicts were then analyzed for reconciliation rates, conflict causes, aberrant causes in relation to reconciliation rates, post-conflict period reconciliatory behaviors, and verbalization of accepted reconciliatory behaviors. It was found that, “boys with LI resolved conflicts with reconciliation at a lower rate than did typically developing boys” (Horowitz et al., 2005, p. 448). A factor in this finding is the difficulty that boys with LI experience in establishing and maintaining reciprocal interchanges.

Brinton, Fujiki, and McKee (1998) compared triads of children with LI (one child with LI and two typically developing children) to similarly constructed triads of typical children to examine the ability to participate in a negotiation sequence. The results showed that while the children with LI did not produce fewer utterances than their partners, they did produce a significantly smaller percentage of the negotiation strategies. The children with LI used developmentally lower level strategies than their partners in the triads. Triads containing typically developing children did not produce similar differences.

### **Social Problems in Children with LI**

Given these problems in social communication, it is not surprising that children with LI experience a number of problematic social outcomes. For example, it has been well documented that these children demonstrate high levels of reticent withdrawal (Fujiki, Brinton, Morgan, &

Hart, 1999; Hart, Fujiki, Brinton, & Hart, 2004). By way of illustration, Hart et al. (2004) found that teachers rated children with LI as producing high levels of reticence behavior, including staring at other children without interacting, not participating even with lots of activities surrounding them, and being fearful of approaching other children. Along with these reticent behaviors, children with LI also demonstrate poor sociable behaviors, thus indicating that the children with LI do not compensate for their reticence by being adequately sociable when the need arises.

It has also been demonstrated that children with LI are less accepted by peers. Gertner, Rice, and Hadley (1994) found that preschool children with LI were the least preferred play partners in a preschool context designed to support children with language problems. Fujiki, Fujiki, Brinton, Hart, and Fitzgerald (1999) found that elementary school age children with LI had fewer reciprocal friendships than their classmates. These findings appear to be relatively stable, as Durkin and Conti-Ramsden (2007) found that adolescents with LI had fewer friends and fewer close relationships than their peers with typical language skills. Given these social communication difficulties, it is not surprising that older elementary school age children with LI report lower levels of self-esteem (Jerome, Fujiki, Brinton, & James, 2002) and higher levels of victimization (Conti-Ramsden & Botting, 2004) than their typically developing peers.

There is little doubt that impaired language skills play an important role in the social communication difficulties experienced by children with LI (Redmond & Rice, 1998). There are indications, however, that poor language skills do not explain all of the social difficulties experienced by children with LI. For example, Hart et al. (2004) examined the relationship between severity of LI and the severity of two types of social problems experienced by many of the children with LI: high levels of reticent withdrawal and poor sociability. It was found that

the children's level of sociable skills was related by severity of LI, with children with more severe LI having poorer sociable skills. No such relationship was found, however, when severity of LI was examined in relation to reticence. Language level was not related to degree of reticence.

### **Emotional Intelligence in Children with LI**

In considering what factors might interact with language to produce the social outcomes observed in children with LI there are a number of areas that might be considered. One of the most promising is the domain of emotion. Emotional intelligence has a critical influence on a child's social interactions. As Denham (1998) has noted, "children who understand emotion better also have more positive peer relations" (Denham, 1998, p. 14).

Emotional intelligence is defined as "the ability to perceive and express emotions, to understand and use them, and to manage emotions so as to foster personal growth" (Salovey, Detweiler-Bedell, Detweiler-Bedell, & Mayer, 2008, p 535). Recent research has brought to light that children with LI may experience challenges in perceiving, understanding, and regulating emotions (Brinton & Fujiki, 2005).

There are several aspects of emotional intelligence that influence positive social interactions. One fundamental aspect is being able to identify other's emotions. Spackman, Fujiki, Brinton, Nelson, and Allen (2005) asked children with LI to look at facial expressions and identify the emotion being expressed. The children were able to identify *happy*, *sad*, and *angry* accurately. However, recognizing *surprise* and *disgust* was significantly more difficult for the children with LI. Identifying *fear* was difficult for both children with LI and typically developing children.

Prosodic cues also play a large part in emotion perception. Researchers have assessed the ability of children with LI to use these prosodic cues to identify emotions. Boucher, Lewis, and Collis (2000) asked children with autism spectrum disorder to match emotions of voice clips conveying an emotion to photographs of facial expressions of that same emotion. Typical children and children with LI were also included as controls. Surprisingly, it was found that the children with LI performed significantly lower than both the typical children and the children with autism spectrum disorder in matching the voice clips to the photographs.

Another important aspect of emotional competence is the ability to regulate emotions. Fujiki, Brinton, and Clarke (2002) analyzed teacher's ratings of both typically developing children and children with LI to determine how well each child was able to regulate his or her own emotions. Children with LI were rated significantly lower on questions regarding emotional regulation. Building on this work, Fujiki, Spackman, Brinton, and Hall (2004) used a multiple regression analysis to show that language and emotion regulation accounted for 43% of the variance in reticence scores in children with LI. Teachers reported that when the task required participants to get "psyched up" or raise their emotional state, children with LI had difficulty raising their emotions to accomplish the task.

It is also important to be able to match emotion to a situation appropriately. Using rating scales, teachers indicated that children with LI "did not elevate emotion appropriately in interaction" (Fujiki et al., 2004, p. 644). The teachers based their ratings off situations both positive (e.g., overtures of friendship) and negative (e.g., hostile or aggressive interactions) situations and how the children with LI responded. The ratings showed that the children with LI did not respond appropriately to many of the situations presented. The children with LI were unable to adjust their emotions to respond appropriately to a situation (Fujiki et al., 2004).

The ability to understand emotions is another aspect of emotional competence. Ford and Milosky (2003) asked both typically developing preschoolers and those identified with LI to infer the expected emotional reactions of characters in a hypothetical situation. Results showed that children with LI performed significantly worse than their typically developing peers. Children with LI were also more likely to make valence errors when an emotion was misidentified (e.g., labeling *happy* as *sad*). This difficulty in accurately understanding emotions can present social difficulties for children and can negatively impact the development of friendships (Ford & Milosky, 2003).

Spackman, Fujiki, and Brinton (2006) replicated the Ford and Milosky (2003) study using older, school-aged children with LI. Similar results were found in that children with LI performed significantly worse than their typically developing peers. Typically developing children are able to describe in depth what certain emotions feel like using diverse scenarios and more complex synonyms. When children with LI were asked to describe what certain emotions felt like, they were likely to repeat the same word or respond inappropriately.

Ford and Milosky (2008) replicated their original study (Ford & Milosky, 2003) with one addition. Participants were presented with an emotion-eliciting situation. They were then shown a facial expression that sometimes matched and sometimes mismatched the intended emotion of the presented situation. Typical children produced a significant increase in response times between the matched and mismatched facial expressions. Children with LI showed no difference in response times between the matched and mismatched facial expressions, however. This demonstrates that the children with LI were simply naming the facial expressions presented rather than activating emotional knowledge.

McCabe and Meller (2004) examined the ability of children with LI and their typical

peers to indicate the emotion experienced by a character in a story. In some stories the character reacted in a stereotypical manner (e.g., the puppet felt *fear* while experiencing a nightmare). In others, the character reacted in a non-stereotypical manner (e.g., the puppet arrived at school looking very *sad* although the puppet's mother said that the puppet was very *happy* to go to school). Children with LI performed significantly more poorly than typical children in stereotypical situations but not in non-stereotypical situations. The authors suggested that children with LI might have difficulty ascertaining appropriate emotions under certain circumstances.

The ability to dissemble (hide) emotion when it is socially appropriate to do so represents a relatively complex aspect of emotional understanding. Brinton, Spackman, Fujiki and Ricks (2007) examined the ability of children with LI and their typical peers to dissemble emotions in a hypothetical situation involving a character named Chris who needed to hide an emotion to be socially appropriate (e.g., hiding sadness over a disappointing gift from a favorite aunt). In certain situations, both typical children and children with LI failed to dissemble their emotions. However, children with LI failed to dissemble their emotions (e.g., telling Uncle Bob that his homemade chocolate cake was nasty) about twice as often as typically developing children. Interestingly, children in both groups were able to indicate that Chris's parents would want him or her to dissemble emotion.

### **Social Communication Interventions**

Even though the evidence has been growing that children with LI struggle generally with social communication (and in particular with emotional intelligence), there are only a few studies that address the efficacy of interventions designed to address social communication. In conjunction with the National Center for Evidence-Based Practice in Communication Disorders

(N-CEP), the American Speech-Language Hearing Association (ASHA) Ad hoc committee on Language Use in Social Interactions in School-Aged Children (Gerber, Brice, Capone, Fujiki, & Timler, 2012) examined the efficacy of social communication interventions in school age children with LI. After an exhaustive search, the committee found a total of eight studies that met the criteria (Adams, 2001; Adams, Lloyd, Aldred, & Baxendale, 2006; Bedrosian & Willis, 1987; Dollaghan & Kaston, 1986; Klecan-Aker, 1993; Merrison & Merrison, 2005; Richardson & Klecan-Aker, 2000; Swanson, Fey, Mills, & Hood, 2005). All eight of these studies were considered as exploratory. Researchers were encouraging enough, however, that it was suggested that more research needed to be performed to more fully investigate these interventions (Gerber et al., 2012).

In the eight studies identified by the committee, researchers targeted several goals. These goals included receptive social communication skills (Dollaghan & Kaston, 1986; Merrison & Merrison, 2005), expressive social communication skills (Adams, 2001; Adams et al., 2006; Bedrosian & Willis, 1987; Richardson & Klecan-Aker, 2000), narrative skills (Klecan-Aker, 1993; Swanson et al., 2005), prosodic skills (Adams, 2001), and metapragmatic skills (Adams, 2001). Richardson and Klecan-Aker (2000) performed the only study to directly look at emotional intelligence. This study measured the development of the variables of conversation, receptive and expressive identification of internal responses, and qualitative and quantitative description of objects. The participants showed growth in each of these areas, along with growth in areas not specifically targeted during the study. The Richardson and Klecan-Aker study encouragingly shows that a child with LI may improve his or her own emotional competence when these abilities are directly targeted.

Since the publication of Gerber et al.'s (2012) investigation, several other studies have

been conducted to target pragmatic language intervention (Adams, 2008; Adams, Lockton, Gaile, Earl, & Freed, 2012; Fujiki, Brinton, McCleave, Anderson, & Chamberlain, 2013). By way of illustration, Fujiki et al. (2013) examined a social communication intervention to increase validating comments in children with LI. Validating comments were defined as statements that were directed to peers for the purpose of encouraging further interaction (e.g., personal compliments, compliments on actions, statements of encouragement, comments of consolation, offers to help, social acknowledgements and positive comments on the actions of others). Of the four children studied, one made notable gains, two made more modest gains, and one made only minor improvement. This intervention addressed an aspect of emotional intelligence in helping the children with LI interact more positively with their peers. The studies done by Adams (2008) and Adams et al. (2012) did not specifically address emotional intelligence.

There is still much research to be done in order to better develop social communication intervention, however. The current study was developed to observe the effects of social communication intervention on school-aged children with LI. Like the Richardson and Klecan-Aker (2000) study, this study focused on the emotional intelligence as the goal of the intervention.

In past studies, children with LI have often failed to accurately identify emotions (Boucher, Lewis, & Collis, 2000; Ford & Milosky, 2003, 2008; Fujiki, Spackman, Brinton, & Illig, 2008; 1991; Spackman et al., 2005). The ability to correctly identify emotions has important implications for successful social interaction. This thesis used the production of emotion words to measure each child's general emotional competence through a story enactment intervention. Although this is a narrow measure of a broad ability, accurate productions of emotion words provided a quantifiable measure. The specific research question addressed in this

thesis was as follows: Does a 20-session social communication intervention focused on improving emotional competence result in an increase in the production of emotion-based words expressing *happiness, sadness, anger, fear, surprise, and disgust*?

### **Method**

This thesis was part of a larger project that included six children with poor social communication skills. An intervention method targeting emotion understanding was administered to all six children. Prior to intervention, each child was tested using the Comprehensive Assessment of Spoken Language (CASL; Carrow-Woolfolk, 1999) and the Universal Nonverbal Intelligence Test (UNIT; Bracken & MaCallum, 2003). Before and after the administration of the intervention, each child completed the following scripted tasks as baseline and follow-up measures: a facial expression emotion recognition task, an emotional inferencing task, and a spontaneous conversational sample. This project focused on three of the six children studied. All three had a diagnosis of LI and were near the same age. The purpose of this study was to evaluate the efficacy of the story enactment intervention to increase the accurate production of emotion words over the course of baseline, therapy, and follow-up sessions. A single case design was used to compare the participants' expressive use of emotion labels before and after therapy. The emotions *happy*, *sad*, *angry*, *scared*, *surprised*, and *disgusted* were monitored.

### **Participants**

Two boys and one girl identified with LI participated in this intervention. These children ranged in age from 5;3 (years; months) to 6;10. The participants attended a local elementary school. All three children were receiving speech and language services through the school at the time of the intervention twice a week for 20 minutes each. Some were also receiving special education services through the school's resource program for help in math or reading. All three participants earned composite language scores below 85 on the CASL (Carrow-Woolfolk, 1999). The participants also earned Full Scale IQ scores above 80 on the UNIT (Bracken & MaCallum,

2003), ruling out intellectual disability. Either the district audiologist or school speech-language pathologist performed pure tone hearing screenings to ensure that all three participants had hearing within typical limits. Each of the three participants is described in more detail below.

BS (6;10 years;months) was a Caucasian male diagnosed with LI. At age 4, he presented with mild dysarthria and dysphagia and began to attend his school's special needs preschool. He was initially referred for speech services due to his poor articulation. Additional goals targeting language ability were added during treatment when it became apparent that BS was falling behind his peers in overall language as well as articulation. BS was attending first grade and was no longer receiving treatment for his articulation, dysarthria, or dysphagia when this study began. He continued to receive speech and language services for sequencing narratives, appropriate production of regular past tense verbs, and appropriate use of pronouns (Harris, 2011).

MW (5;8) was a Caucasian female who originally identified with developmental delay<sup>1</sup>, however, the school speech-language pathologist has confirmed that MW did not present with an intellectual disability. MW's *UNIT* score of 83 supported this judgment as did her educational placement. The educational staff reported that MW was very shy. At the age of 3, she was enrolled in the school's special needs preschool. At the beginning of the study, she was enrolled in a mainstream kindergarten class with one hour of pull-out resource support every day for reading and math. In addition to attending special classes for remedial skills in reading and math, MW received occupational therapy and adaptive physical education. During speech and language intervention, her language goals included answering story comprehension questions, retelling stories, and expanding general expressive and receptive vocabulary (Harris, 2011).

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<sup>1</sup> All young children seen through the school district's early identification program received an initial classification of developmental delay. This diagnosis was later changed as was appropriate on the basis of more detailed assessment information.

TS (5;3) was an African American male diagnosed with LI. He received low scores in all areas of development at the age of 4 (the lowest of which being in communication skills), and began attending the school's special needs preschool at that time. TS presented with a limited vocabulary, relied heavily on general vocabulary and familiar, over-used scripts to communicate. He had difficulty producing creative sentences but was able to combine words together. As TS's academic difficulties increased, he began to lag further behind his typically developing peers of similar age. At the start of this study, TS was enrolled in mainstream kindergarten and received pull-out resource support every day for academic support. His goals in speech and language services included increasing his receptive and expressive vocabulary, answering questions, and understanding basic concepts such as spatial references (Harris, 2011).

### **Setting**

All 3 children attended a local elementary school. The children were pulled from their classroom for each session. The intervention was administered in the speech language pathologist's office at the school. Two cameras were placed in the room to record each session. The child and clinician sat at a table in order to complete each task. The room was quiet but was occasionally interrupted by a phone call, a school announcement, or a school bell.

### **Materials**

**Mercer Mayer book series.** The *A Boy, A Dog, and A Frog* (Mayer, 1967) series was used during this intervention. The subject matter of the stories was age appropriate and appealing to the participants (e.g., a boy who has adventures and makes friends with animals). The books were all illustrated depicting people and animals with clear, identifiable emotions using facial expressions and body language. There was no text used in the story. Because there was no text, the participants were required to infer relationships, emotions, and character motives

using only the provided illustrations (Harris, 2011).

**Toys for enactment activities.** The participants were given many opportunities to enact the *A Boy, A Dog, and A Frog* (Mayer, 1967) stories during the intervention. The following toys were provided to allow the participants to explore and enact each narrative: bucket, fishing pole, shovel, fishing net, plastic frog, plastic turtle, and stuffed dog. During the story enactments, the participants were encouraged to take on different characters' thoughts, actions, and emotions while using the provided toys and props. A mirror was also available so that the participants could observe their own facial features when mimicking the emotions of the story's characters. The mirror was intended to increase the participants' ability to identify and express emotions using facial expressions and body language (Harris, 2011).

**Mind Reading software.** Mind Reading software was utilized in one session out of 20 for each of the three participants to better illustrate an important emotion that was being portrayed in the *A Boy, A Dog, and A Frog* (Mayer, 1967) stories. Mind Reading (Baron-Cohen, 2004) is an interactive computer program designed to help individuals improve their ability to recognize emotions conveyed by others. Six different individuals (equal number of males and females, children and adults) demonstrated the facial expression and tone of voice that is usually associated with each emotion for each word in the program's library of over 400 emotions. The participants functioned at the most basic level, being level 1 (Harris, 2011).

**Session journal.** A 3-ring binder and crayons were presented to the participants at the end of each session. Using these materials, the participants were encouraged to draw, write, and color anything that was discussed during the session. Any illustrations drawn were given captions describing the emotions, thoughts, or scenes by the clinician. A perspectives chart was also included, where the participants were asked to identify all the emotions experienced by a

single character during the story. The clinician and participant regularly reviewed the journal to review the thoughts and emotions that had been previously discussed.

### **Dependent Variable**

The dependent variable is the number of accurate emotion-based word productions. The emotions that were studied were *happy*, *sad*, *anger*, *surprise*, *scared*, and *disgust*. These emotion-based words were analyzed using procedures described in the emotion-coding manual, which can be found in Appendix B. The data that were pulled from each session were analyzed and discussed.

It was recognized that not all of the emotion words examined were appropriate targets for all of the children. Because of the holistic nature of the intervention, however, it was desirable to present models of all the target emotions to each child. It was also possible to track performance for all emotions for each child. Each child's production of each emotion word is thus presented to give a more complete picture of the child's performance.

### **Social Communication Intervention**

Two graduate student clinicians, under the supervision of two master's level speech-language pathologists (the school speech-language pathologist and the university clinic director), administered the treatment. The entire research project was supervised and coordinated by two doctorate level speech-language pathologists who specialize in clinical research with children with LI (Cornett, 2012).

Twenty one-on-one sessions were administered to each participant; each session lasted 20 minutes and took place two to three times per week. BS completed three baseline sessions prior to the start of therapy and three follow-up sessions after the completion of therapy; MW completed four baseline and three follow-up sessions and TS completed five baseline and three

follow-up sessions. Familiar children's stories were used to emphasize and practice emotion recognition and emotion expression. Each session was adapted to meet each participant's individual needs by being sensitive to each child's mood during the session (Harris, 2011).

At the start of each session, the clinician and child looked at a book in the *A Boy, A Dog, and A Frog* (Mayer, 1967) series together before the child recounted the story to the best of his/her ability with no cues or prompts from the clinician. Then the child and clinician would go through the story using a flexible script to highlight character emotions, labeling and inferring emotions, contrasting emotions, and cause and effect emotions (Harris, 2011). The script was flexible in that the book was read at a different pace according to the child's mood. Any question that was asked by the student during the session was answered by the clinician. Following the story retelling, the child would use the props to enact the story, taking on the perspective from one character of the story. During the enactment, the clinician emphasized the character's emotions and causal relationships. After identifying and acting out the character's emotions, the child and clinician would then act out an emotion that contrasted with the emotions highlighted in the story. These contrasting emotions were put into the participant's journal in the form of a perspectives chart. The clinician and the child completed the emotion charts together, drawing and labeling pictures of each of the characters and how they felt at different points of the story.

The participants then completed their journal entry by writing or drawing the main points learned during the session. The participants were prompted by specific questions from the clinician in order to help the participants connect the story and his/her own personal experiences. After finishing the journal activity, the clinician and participants would go through the story again and write thought bubbles to overtly label the thoughts and emotions of each character. Lastly, the participant drew him/herself into the story with thought bubbles overtly stating his/her

own personal feelings about the story. As the treatment sessions progressed, some steps in the procedures were done simultaneously or in a different order than originally planned (Cornett, 2012).

### **Data Collection**

This study focused on the production of emotion words in the basic categories of *happiness, sadness, anger, fear, surprise, and disgust*. Each session was recorded using one, if not two, digital video cameras. Each of the three participants sessions were watched and analyzed for the accurate production of emotion-words by the participant, the type of production (spontaneous, cued, or repeated), the category of emotional state to which each word belonged (e.g., *happiness, sadness, anger, fear, surprise, and disgust*) and the word's valence (e.g., *mad* and *sad* have the same valence or tone; *happy* and *sad* have a different valence). The accurate production of the targeted emotion words was monitored over baseline, intervention, and follow-up sessions (Cornett, 2012).

For this thesis, an emotion-based word was defined as a specific name for an emotion (e.g., *happy, sad, afraid*). Adjectives (e.g., *funny, cute, silly, weird*), expletives, and interjections (e.g., *Whoa! Hey! Dang it*) were not counted as emotion-based words and were not included in the analysis (Cloward, 2012). The verbs *like, love, and hate* were included due to their strong emotional meanings, however other verbs were excluded (e.g., *want, need* and verb forms of emotion words such as *to scare* or *to hurt*). Words describing the facial expressions were included as well (e.g., “she feels *frowny*”; Cornett, 2012).

### **Interrater Agreement**

The data were analyzed by one graduate and one undergraduate research assistant in Brigham Young University's Communication Disorders Department. The two researchers first

met together and trained on the guidelines in the coding manual. They reviewed the coding manual in great detail together and practiced coding several videos together to ensure that when coding the videos, they applied the coding manual in the same way. They then independently coded 10% of the total number of sessions. Coding took place by hand in a research lab. The videos were stored on a computer while the data were collected on paper and kept in a binder. The data collected by each research assistant was compared and every discrepancy between the research assistants was noted (e.g., such as if an emotion-based word was missed by one researcher or an emotion word was placed in a different emotion category). This led to an overall interrater reliability of 94%.

## Results

The emotion categories considered were *happiness*, *sadness*, *anger*, *fear*, *surprise*, and *disgust*. The percentages for the baseline and follow-up tasks represented the percentage correct from the picture identification task. This percentage was calculated by considering the number of emotion-based words that were accurately produced out of the possible opportunities to produce those words. Baseline and follow-up data for happiness and disgust are presented in Table 1. The data for the remaining words are presented in Figures 1 through 4. The mean number of valence errors produced in the baseline and follow-up sessions is presented in Table 2.

### Happiness and Disgust

Percentages for emotion-based words that fell under the *happiness* category are displayed in Table 1. These data are displayed separately for the following reasons. For *happiness*, all three participants demonstrated consistent knowledge of *happiness* before beginning the intervention. MW's performance was inconsistent, but based on her performance on other measures it was judged to reflect behavioral issues rather than knowledge of the emotion. MW often needed multiple prompts from the clinician to attend to the task and look at the picture that was being shown. For *disgust*, none of the participants demonstrated any knowledge of *disgust* prior to and after the intervention and it was not explicitly taught during the intervention. Thus, performance on this emotion served as a control to determine if other factors, in addition to the intervention, might be influential.

### Sadness

Figure 1 presents the accurate productions of emotion-based words that belong to the *sadness* category. While BS demonstrated consistent knowledge of *sadness* through the

Table 1

*Means of the Percentage of Accurate Happiness and Disgust Productions over the Baseline and Follow-up Sessions*

	Baseline (%)	Follow-up (%)
Happiness		
BS	100	100
MW	52	67
TS	100	100
Disgust		
BS	0	0
MW	0	0
TS	0	0

intervention sessions, there was not a significant difference in the percentages between the baseline (averaging 56%) and follow-up sessions (averaging 58%). In the final baseline session, BS was more interested in the clinician's notes than in attending to the pictures. BS also used words such as "crazy" and "not really" instead of emotion-based words to label the pictures. MW displayed inconsistent results through each session. MW was easily distracted and often did not attend well to the task. For example, when asked to label a picture showing an emotion in the follow-up task, MW would not look at the picture and instead guessed. MW also appeared to tire of the intervention tasks and her performance during the follow-up was a combination of lack of engagement and lack of knowledge. TS demonstrated that he already had knowledge of *sadness* before beginning treatment (averaging 90%) and consistently demonstrated this knowledge over the course of the treatment with an average of 100% over the follow-up sessions.

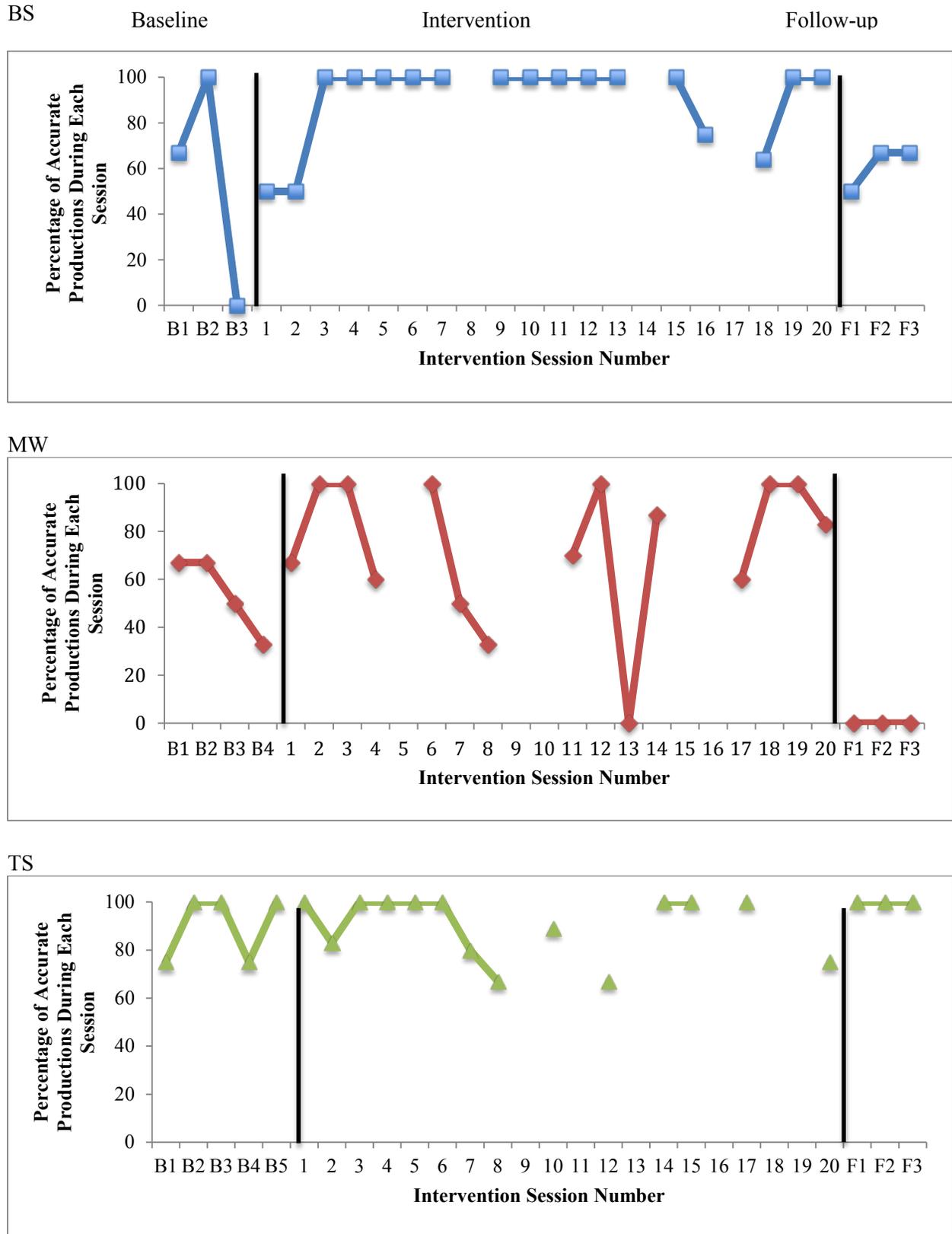


Figure 1. Accuracy of sadness-based productions by each participant, per session.

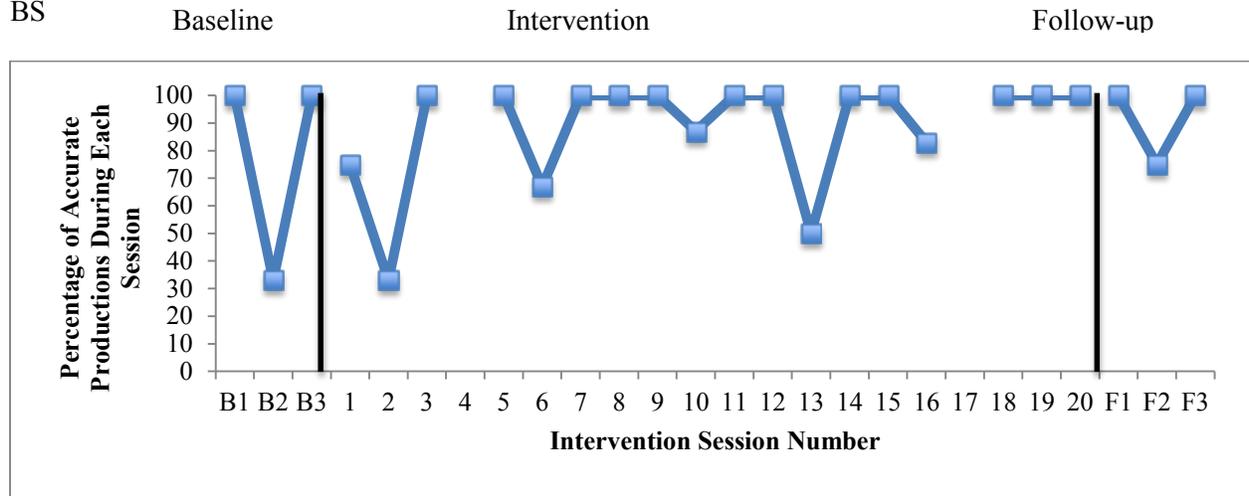
## Anger

Percentages of accurate productions for *anger*-based words for each participant are shown in Figure 2. BS demonstrated an increased understanding of *anger* when comparing the baseline (averaging 77%) and follow-up (averaging 91%) sessions. Due to MW's behavior and her inattention to the tasks over the course of the sessions, MW displayed inconsistent knowledge of *anger* over the course of the treatment. MW displayed no improvement in her production of *anger* words over the course of the treatment, averaging 33% over the baseline and follow-up sessions. MW's variability was due to her lack of effort. Over the course of the baseline sessions, TS demonstrated a very high level of knowledge of *anger*. He continued to perform well in the follow-up sessions. TS appeared to already be familiar with *anger* and did not need explicit teaching of this emotion.

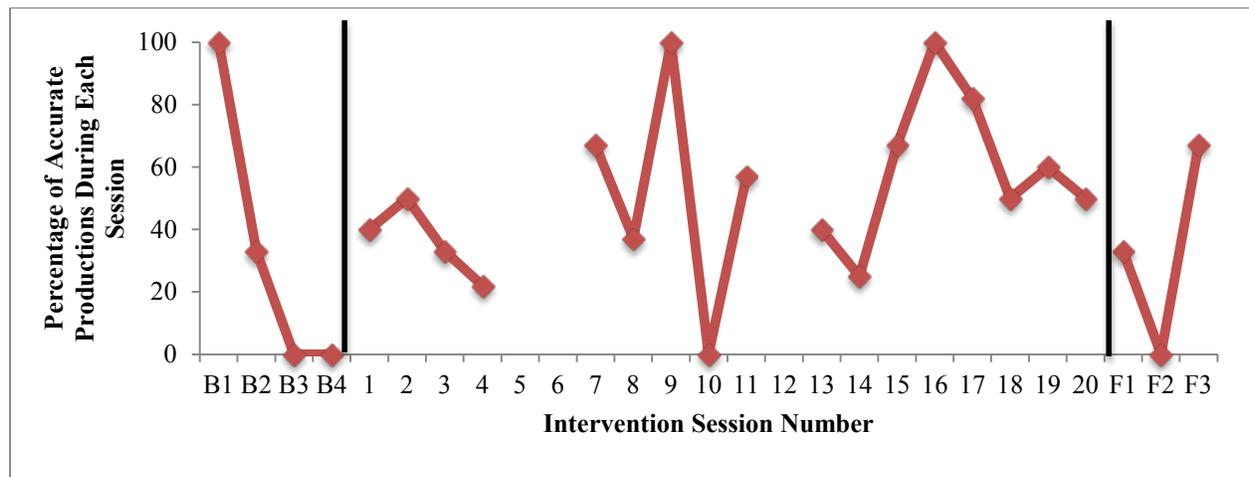
## Fear

Figure 3 presents the percentage of accurate productions for *fear*-based words for each participant. BS demonstrated no knowledge of *fear* prior to beginning treatment (averaging 0%). However, during the follow-up sessions, BS showed an increased understanding of *fear* (averaging 22%). BS did not produce any *fear*-based words during the last several sessions of the intervention. MW displayed an inconsistent understanding of *fear*. As with the other emotions examined, this was likely affected by her distractibility and inattention to task. MW displayed no understanding of *fear* over the follow-up sessions. TS also displayed an inconsistent knowledge of *fear* at the start of the treatment. TS averaged 72% over the baseline sessions but 0% over the first 3 sessions of the intervention. This could be due to the novelty of the treatment program. TS was easily distracted by the props used. Over the follow-up sessions,

BS



MW



TS

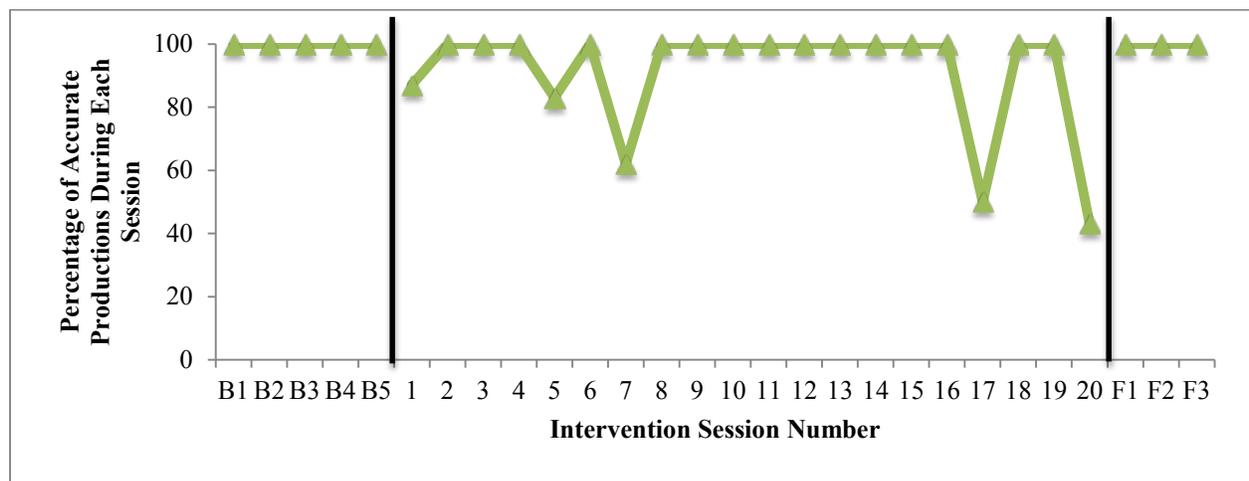


Figure 2. Accuracy of anger-based productions by each participant, per session.

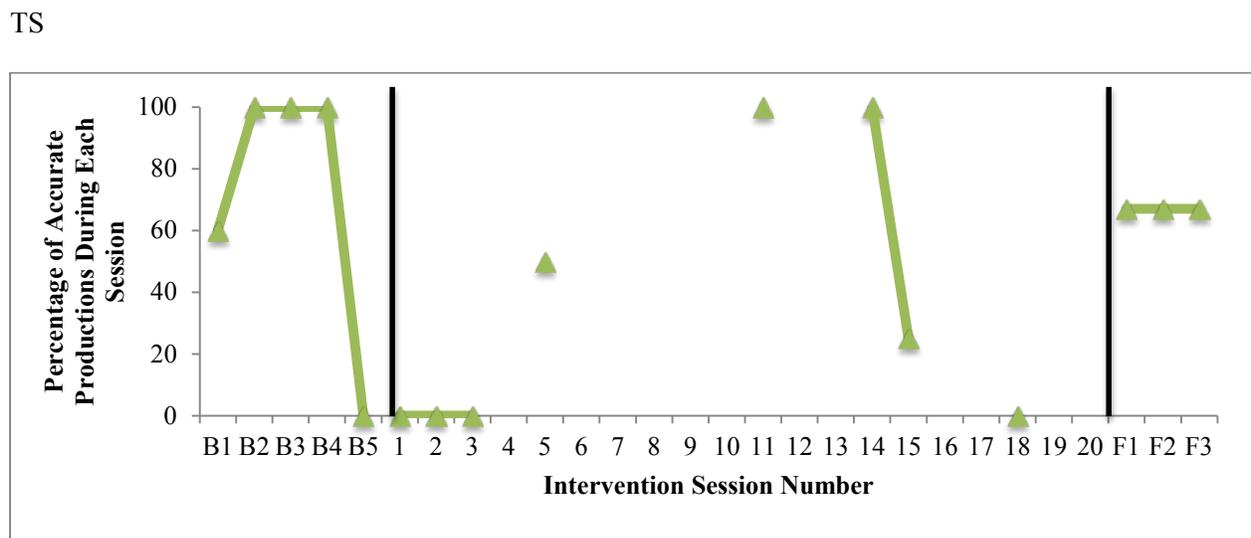
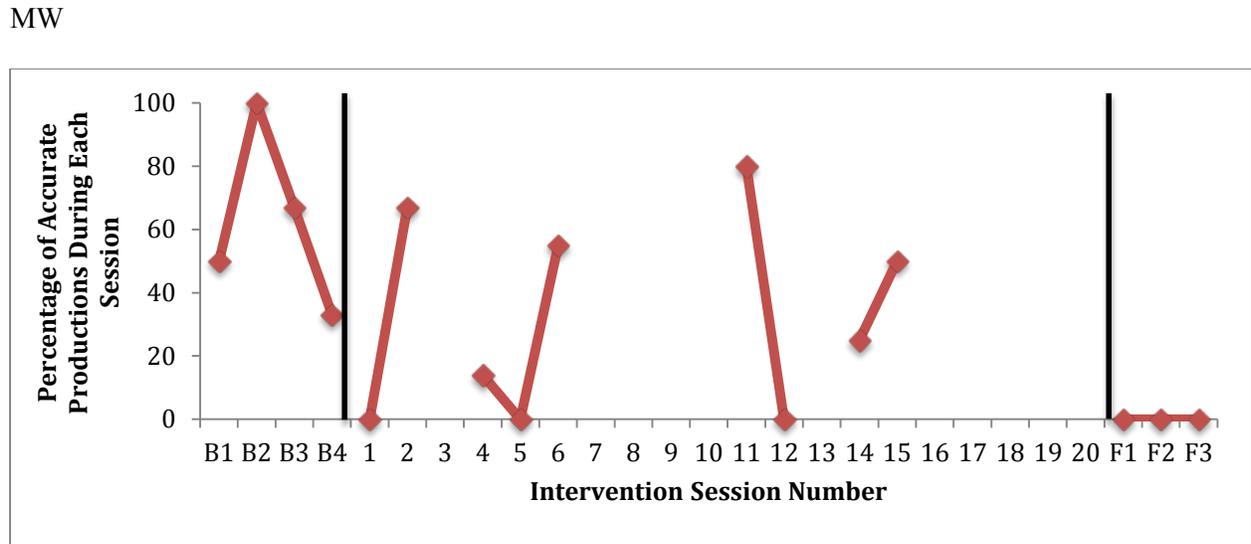
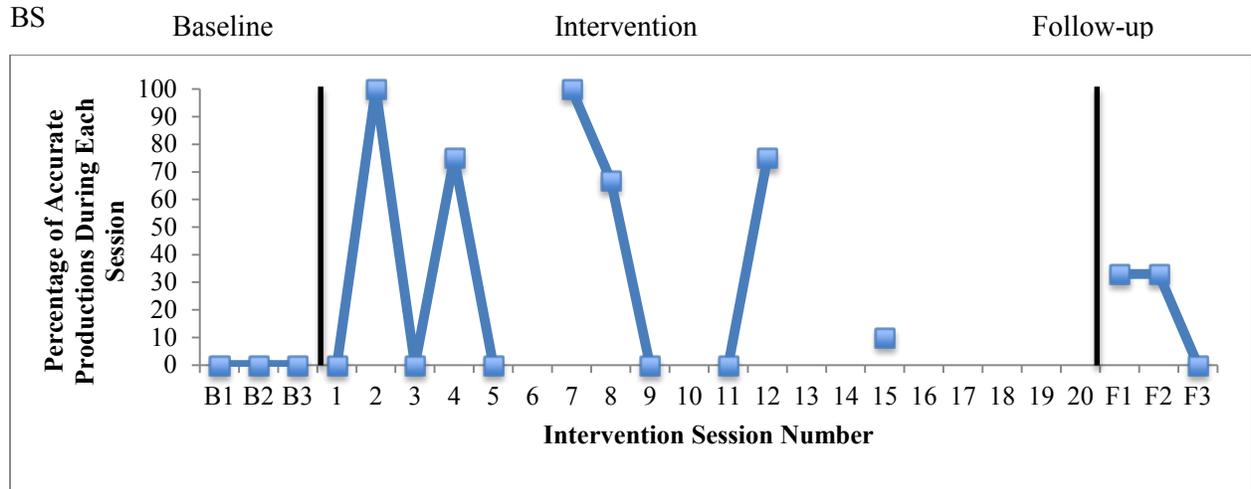


Figure 3. Accuracy of fear-based productions by each participant, per session.

TS displayed an average of 67%. TS did not have very many productions of *fear*-based words over the course of the treatment. This may have affected TS's performance during the follow-up sessions.

### **Surprise**

Data indicating percentages of accurate productions of *surprise*-based words for all three participants are shown in Figure 4. BS demonstrated that he learned *surprise*-based words well. BS averaged 0% over the baseline sessions and 100% over the follow-up sessions. BS reacted very well to learning this emotion-based word using this story enactment intervention. MW continued to display inconsistent knowledge of *surprise*-based words over the course of the intervention. MW averaged 35% over the baseline sessions and 45% over the follow-up sessions. Although MW's productions were erratic and inconsistent, she did show improvement when comparing the baseline and follow-up sessions. TS demonstrated no gains in learning *surprise*-based emotion words over the course of the intervention. He began the intervention with an average of 0% and ended the intervention with an average of 0%.

### **Valence Agreement**

A valence was determined for each emotion word that the participants produced. Productions belonging to the *happiness* and *surprise* (for the baseline and follow-up picture identification task) category were considered to have a positive valence. All productions belonging to *sadness*, *anger*, *fear*, and *disgust* were considered to have a negative valence. When the participants' productions did not match the intended target emotion-based word, valence agreement was determined using the guidelines outlined previously. BS did not demonstrate much change when comparing the means of his baseline and follow-up sessions. MW and TS each produced moderately fewer valence errors when comparing their baseline and

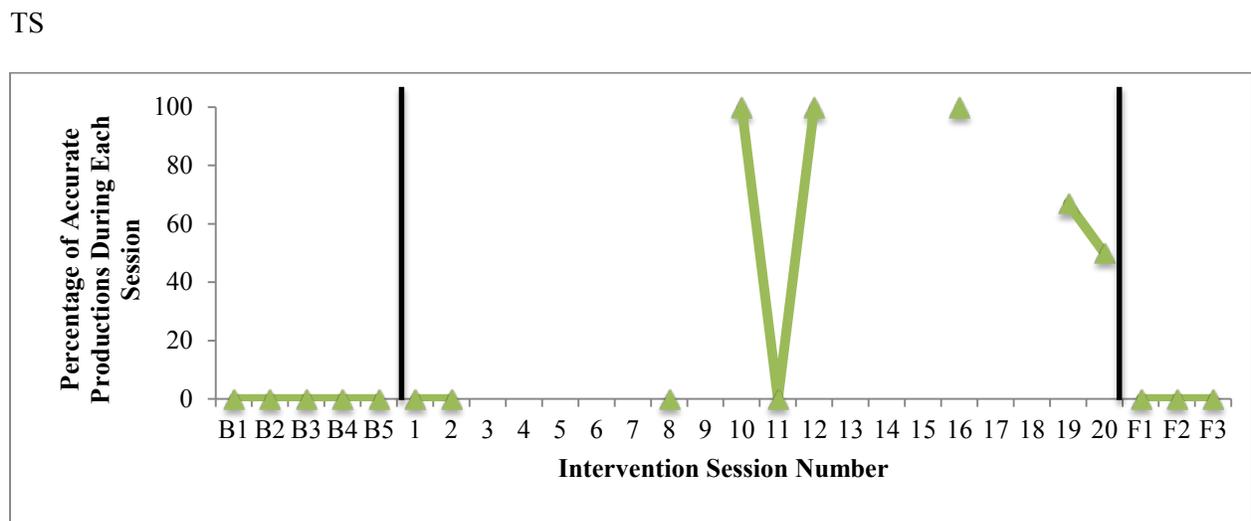
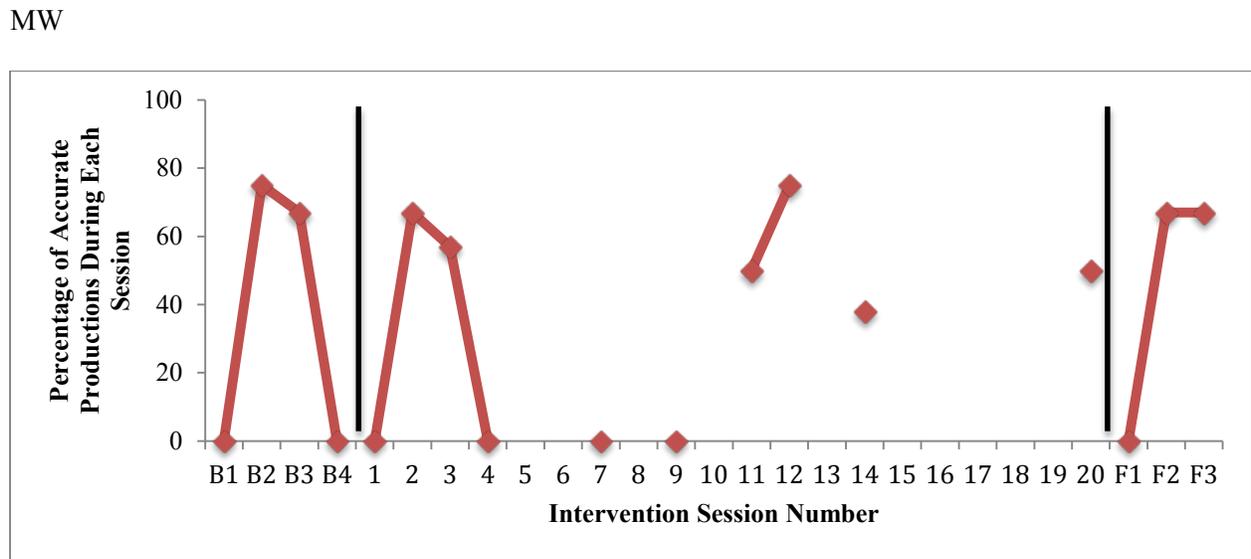
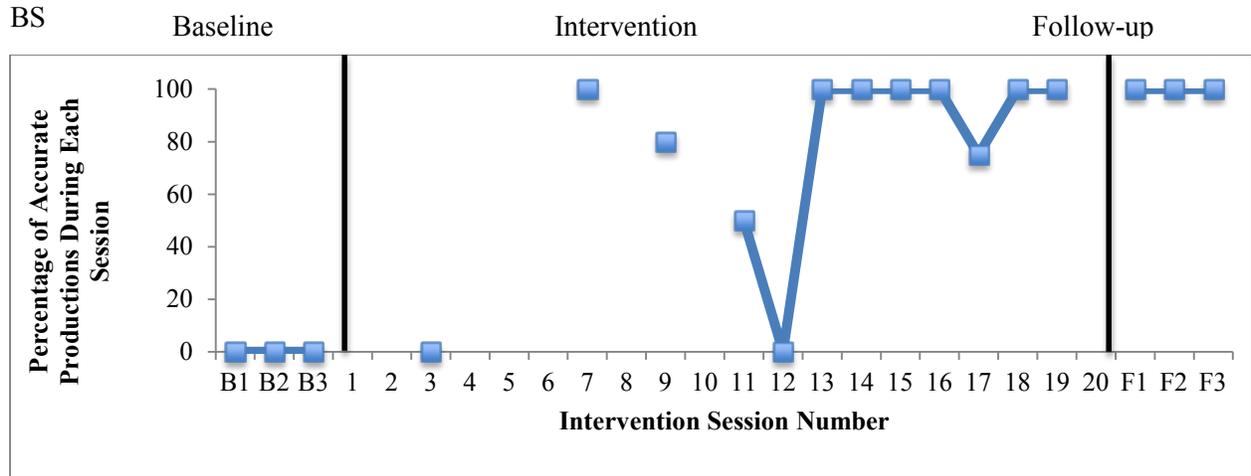


Figure 4. Accuracy of surprise-based productions by each participant, per session.

follow-up sessions. MW and TS were able to use more words that matched the valence of the intended word positively or negatively. TS showed the most improvement in his valence agreement over the course of the treatment. There was no pattern across the three children as to which specific emotion-based word produced the most valence errors. However, all three children produced more valence errors on negative words than positive. This was to be expected as more words were classified negative than positive.

Table 2

*Mean Number of Valence Errors Produced by Participants over the Baseline and Follow-up Sessions*

Participant	Baseline	Follow-up
BS	4.3	4.7
MW	7.25	6.6
TS	7.8	6

## Discussion

As discussed previously, children with LI display difficulties in emotional competence (Fujiki et al., 2002; Fujiki et al., 2008; Ford & Milosky, 2003, 2008; Spackman et al., 2005; Spackman et al., 2006). Given the close link between emotional and social competence (Denham, 1998), it is likely that these problems impact social communication. Despite the research indicating that school age children with LI have difficulties with social communication and emotional competence, relatively few studies have examined the efficacy of interventions for these problems (Gerber et al., 2012). The purpose of this thesis was to examine the effectiveness of a novel social communication intervention designed to increase the accuracy percentage of emotion-based words produced by three children with LI. The results of all the participants will be discussed in the following section.

### Individual-Based Findings

**BS.** Following intervention, BS displayed improvements in the percentage of accurate productions in *anger*, *fear*, and *surprise*. Little or no change was seen in the category *sadness*. BS demonstrated a high knowledge of *happiness* throughout the entire intervention. At the same time, he demonstrated no knowledge of *disgust* before or after the intervention. BS improved the most dramatically in the category of *surprise*. BS produced more *surprise* words as the intervention progressed. This finding indicated that BS learned to produce words representing surprise and became more willing to use them appropriately. During the baseline sessions, BS displayed a moderate to high knowledge of *sadness* and *anger*. Through the course of the sessions, BS continued to display a high knowledge of these two categories with a higher average of percentage of accurate productions during the follow-up sessions. BS demonstrated

relatively variable understanding of *fear*. This could indicate that BS was learning the category of *fear* but needed more time and more focused training on that emotion.

**MW.** MW was often distracted during baseline, intervention, and follow-up. This seriously impacted her accurate production of emotion-based words. MW was very inconsistent in her displays of each emotion as outlined previously. MW often tired of the activities and would use the same emotion-based word to answer the clinician's question without attending to the task (e.g., during one session, for each picture MW was shown, she answered "sad" without looking at any of the pictures). This greatly affected her follow-up percentages. Illustrative of this was the fact that there was strong evidence that MW understood the category of *happiness* and could use happy words correctly. She performed variably on this category in both baseline and follow-up, however. MW did show an increase in average of the percentage of accurate productions in the category of *surprise*. This gain may have been due to chance, however, as she demonstrated a high degree of variability in her performance.

**TS.** TS demonstrated a high knowledge of the categories *happiness*, *sadness*, and *anger*. This knowledge of these categories was demonstrated through the intervention and follow-up sessions. TS displayed an inconsistent knowledge of *fear* and did not produce many *fear*-based words over the course of the intervention sessions. TS did not display any growth in the categories of *surprise* and *disgust*. He did not produce many *surprise*-based words throughout the intervention but there were sessions where he appeared to understand this category. Similar to the other participants, TS did not display any growth in *disgust*. This was expected, however, in that the category was not targeted during the intervention.

**Valence Agreement.** Valence errors (e.g., confusing negative for positive emotions) can greatly disrupt social interaction (Ford & Milosky, 2003). The number of valence errors

produced by the participants, was relatively low. MW and TS both produced moderate decreases in the amount of valence errors they made over the baseline and follow-up sessions. BS showed relatively stable production of valence errors. This is encouraging because it showed that two of the participants were able to better understand if the needed emotion was positive or negative even if the correct word was not used. However, there was no pattern or consistency when examining the specific words which caused the most valence errors.

### **Conclusions**

A general intervention that targeted a range of emotions was used. The limitations of this general approach will be discussed later. Overall, two of the three participants responded positively to the intervention, BS and TS. Both of these participants showed improvement in at least one emotion word category in which they were initially limited. MW's results indicated that she did not respond well to the treatment, with her inattention to the task and distractibility being important considerations. Each participant's performance was variable through the course of the intervention. However, when looking at the comparisons between the baseline and follow-up sessions, results indicate that all emotional categories (excluding *disgust* which was not directly targeted) showed gains by at least one participant. Because *disgust* was not targeted, it functioned as a control. If participants had demonstrated improvement in this category it would be likely that growth could be attributed to other sources besides the intervention. With an improvement in the percentage of accurate emotion-based word productions, this intervention has potential to help other children with LI develop better emotional understanding. It also helped two out of three participants reduce in the amount of valence errors produced. It was unknown how successful the intervention was in generalizing performance from intervention to spontaneous social interactions.

### **Limitations of the Study**

There were a number of potential limitations to this study. The baseline and follow-up tasks were well scripted and called for a certain number of emotion-based word productions each session. However, the intervention sessions were more flexible and did not require a set number of emotion-based word productions. It was left to the discretion of the clinicians to judge what was appropriate for each participant in each session. Additionally, the intervention was administered by two different clinicians. It is likely that there were some differences in the implementation of the intervention. For example, one clinician created more opportunities and elicited more emotion-based words from the participants. She also consistently allowed the sessions to run longer than 20 minutes. The other clinician did not elicit as many emotion-based words but was more consistent in the timing of the sessions. These individual factors may have contributed to some of the differences in the participants' performances over the course of the intervention. Also, only 10% of the sessions were coded to establish interrater reliability. If more sessions had been coded, such as 25-30% of the total number of sessions, there would have been a stronger interrater reliability.

Another limitation was the general nature of this intervention. It was not designed to focus on the participant's individual needs. For example, TS displayed a high knowledge of *happiness* and *anger*. Despite his familiarity with these two emotional categories, the general intervention continued to model these two emotions. It is likely that more clinical attention should have been focused on helping TS understand *fear*. Each child may have shown more growth if the intervention was focused specifically to help them in their weakest areas.

It is likely that the intervention was not long enough. The participants may have needed more than 20 sessions of treatment in order to learn these emotional categories and words. Each

child showed spikes in understanding of different emotions over the course of the intervention but in the follow-up, displayed a low knowledge of the emotion. This may be because the child was beginning to understand but more time was needed in order to solidify the emotion for the child. Research has shown that the length or duration of interventions is a factor in positive outcomes (Law, Garrett, & Nye, 2004).

A final limitation is the heterogeneous nature of LI in children. Given the nature of LI, it is unrealistic to expect an intervention to affect every child with LI in the same way. The current intervention appeared appropriate for some of the participants and less so for others. MW did not respond well to the intervention. She did not show measurable improvement in any of the emotions targeted. However, BS responded well and showed dramatic improvement in the category of *surprise*. These two participants demonstrate the variable nature of LI and that different individuals will respond differently to this and other interventions.

### **Directions for Future Research**

Gerber et al. (2012) reported that there are few social communication intervention studies available that examine school age children. More research needs to be done in order to create and evaluate these types of interventions for this population. Although this study's results were variable, they did show promise. This intervention and other similar interventions can continue to be studied in single subject designs in order to allow for the consideration of individuals' differences when applying the intervention. In the future it may be possible to conduct larger group clinical trials that involve random assignment of participants to treatment and control groups. In conducting such studies it will still be important for researchers to consider the heterogeneity of the population under study, however.

In this intervention, the clinicians used many different types of elicitation methods in order to facilitate production of the emotion-based words. The different types of elicitation included cuing (e.g., semantic, gestural), repetition, spontaneous productions, and question-response sequences. Researchers may want to investigate what elicitation techniques were most successful in helping children produce these emotion-based words. This knowledge could help clinicians know how to best structure the intervention to make it successful. If most participants produce emotion words in response to questions, specific types of questions could be developed to help the clinician provide the appropriate amount of support. A hierarchy of cuing could also be developed to provide appropriate support for the child.

### **Summary**

Despite the variability of participant's results, this social communication intervention showed promise as a tool in increasing the emotion knowledge children with LI. Valence errors were reduced over the course of the intervention. And although improvements could be made in goal selection for individual participants, these results suggest that this intervention may be effective in teaching children to produce more of the targeted emotion-based words with more accuracy. More research to improve and evaluate this type of intervention needs to be conducted before any definitive conclusions are drawn concerning the general effectiveness of this intervention. With more research, the results indicate that this intervention could be shaped and developed to help children with LI produce a higher number of accurate emotion-based words.

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## Appendix A

### Annotated Bibliography

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

**Summary:** The author's purpose of this paper was to describe children diagnosed with semantic-pragmatic language Disorder (SPLD) and to determine if a different label of pragmatic language impairment (PLI) was more appropriate. The author used two case studies to look at the relevance of PLI. Each child's conversational skills were assessed in order to determine goals for treatment. After treatment, another conversational sample was analyzed. The label of SPLD was assigned to both of these children at the start of the study, however, two different intervention methods were needed to treat both children. This suggests that PLI may be a better classification than SPLD. The results demonstrated that with thoughtful and well-planned assessment and intervention, one can observe and measure changes in pragmatic abilities in children with language impairments. More research needs to be done in order to determine the best diagnostic classification for these children.

**Relevance:** Both of the children studied in this paper presented with social communication difficulties. Through careful planning, assessment, and intervention, both children responded positively to treatment. This is encouraging to show that children with language impairments can improve in their social communication with treatment. More research needs to be done to continue to develop this type of intervention but the results of this study are encouraging.

Adams, C. (2008). Intervention for children with pragmatic language impairments. In C. Norbury, J. B. Tomblin, & D. Bishop (Eds.), *Understanding developmental language disorders: From theory to practice* (pp. 189-204). New York, NY: Psychology Press.

**Summary:** The purpose of this chapter was to review the diagnostic issues associated with pragmatics and language disorders and to outline the options for pragmatic intervention that were current at the time. Researchers had created individualized pragmatic interventions but there were no valid frameworks for pragmatic intervention. However, studies have shown that the social communication of children with PLI do benefit from speech and language services. The authors described a framework of social communication intervention called the Social Communication Intervention Project (SCIP). The purposes of SCIP were to develop awareness of social cues, explicitly stating and practicing rules and conventions, and improving language processing by focusing on high-level features of language organization.

**Relevance:** Although, PLI is fairly common among school-aged children, there is a lack of intervention processes to address the social communication deficits that accompany PLI. With the variable nature of PLI, developing widely applicable interventions is difficult. This thesis examines the efficacy of such a social communication intervention that looked specifically at increasing emotional competence. By improving emotional competence, a child can possibly improve their social functioning.

Adams, C., Lloyd, J., Aldred, C., & Baxendale, J. (2006). Exploring the effects of communication intervention for developmental pragmatic language impairments: A signal-generation study. *International Journal of Language & Communication Disorders, 41*(1), 41-65. doi: 10.1080/13693780500179793

**Summary:** The aim of this study was to determine if there is a signal that speech and language therapy brings about change in language and pragmatic skills of children with pragmatic language impairment (PLI), how to best detect that signal, the magnitude of the signal, and what the implications for future studies are. Six children diagnosed as having PLI and who were receiving appropriate treatment participated. Each child received one-on-one speech therapy sessions. Treatment was individualized based on pre-therapy assessments. Although the results were variable, each child showed some degree of change in their communication behavior on some conversation measures. This indicates that a signal for change in pragmatics and/or language behavior was observed in all children. Teachers also indicated that the intervention effects generalized to classroom performance.

**Relevance:** This article points out the need for more inclusive and concrete evidence in developing social communication interventions. At the time publication, the authors did not feel that there was enough high-quality research to support the treatment and improvement of pragmatic skills. As this thesis looked at the effectiveness of a social communication intervention in children with social communication deficits, it is attempting to provide more high-quality evidence to support the treatment of pragmatic skills.

Adams, C., Lockton, E., Gaile, J., Earl, G., & Freed, J. (2012). Implementation of a manualized communication intervention for school-aged children with pragmatic and social communication needs in a randomized controlled trial: The Social Communication Intervention Project. *International Journal of Language & Communication Disorders, 47*(3), 245-256. doi: 10.1111/j.1460-6984.2012.00147.x

**Summary:** This study examined the structure and fidelity of the Social Communication Intervention Project (SCIP), a randomized control trial to evaluate the efficacy of social communication intervention. Fifty-seven children in the UK participated in this study. Each participant received individualized SCIP procedures. The authors developed an SCIP intervention manual that outline detailed intervention procedures that would allow any professional trained in SCIP procedures to be able to successfully implement the activities outlined for each participant.

**Relevance:** Due to the variable nature of language and social deficits, creating a single framework or intervention is a difficult task. Not every task, activity, or goal is appropriate for each and every child. However, this article demonstrated that the authors' were able to confirm the integrity of the complex language intervention that they developed. The research presented in the article suggests that there is a way to address the individual needs of children while using the same program for each child.

Bedrosian, J. L. & Willis, T. L. (1987). Effects of treatment on the topic performance of a school-age child. *Language, Speech, and Hearing Services in Schools, 18*, 158-167. doi: 0161-1461/87/1802-0158\$01.00/0

**Summary:** The purpose of this study was to determine the efficacy of treatment on the topic performance of a child with a language disorder. A 5-year-old male child was used. He was enrolled in a typical kindergarten class but most of his topic initiations were about the here-and-now. Based on the results of the assessments, treatment goals were chosen to increase the frequency of his past and future topic initiations. Following treatment, the child showed an increase in the variety of topics he initiated. The results provided evidence that improvement in the overall language performance of a child can be accomplished by focusing on functional communication skills.

**Relevance:** This study provided support to a pragmatic intervention that targeted social communication skills. There is a need for more research to determine the effects of pragmatic interventions with school-aged children. This study also pointed out areas of weakness in the development of effective treatment and assessment strategies. These areas of weakness are helpful in researchers as more is done to develop and create interventions for children with LI.

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

**Summary:** In a previous study, the authors found that children with autism have difficulty in matching familiar voices and faces when compared to a mixed group of children with language-delay. The purpose of this study was to replicate and deeper explore these earlier findings. Participants included 19 children diagnosed with autism and a control group of 19 children diagnosed with SLI. For two of the experiments 19 typically developing children made up an additional control group. The children participated in four experiments. A surprising result was that the children with SLI and ASD performed similarly on voice-face affect matching and vocal affect naming. They both demonstrated problems at the level of encoding meaning, but not encoding perception.

**Relevance:** Understanding and interpreting vocal prosody is an important aspect of emotional intelligence. This study demonstrated some of the difficulties that children with SLI can have in understanding emotion conveyed by prosody. It provided evidence that children with LI struggle with emotion perception, even emotion conveyed by prosody. This provides support to the need for interventions to target emotional intelligence for children with LI.

Brinton, B., & Fujiki, M. (2005). Social and affective factors in children with language impairment. In C. A. Stone, E. R. Silliman, B. J. Ehren, & K. Apel (Eds.), *Handbook of language and literacy: Development and disorders* (2nd ed.). New York: Guilford Press.

**Summary:** This chapter discussed the social and emotional issues that stem from LI and their long-term prognosis. Children with LI have demonstrated a difficulty in accessing conversations, cooperating in groups, resolving conflicts, and many other areas of social communication. Research has also shown that children with LI have difficulties with many aspects of emotional intelligence. Children with LI also have difficulty with language, which affects their acquisition of literary skills. Literary skills are often imbedded in social interactions. The authors also point out that is important to recognize the variability of LI and that each child will present differently.

**Relevance:** This chapter summed up the difficulties that children with LI face in both social and language development. It highlights the trouble these children have with emotional intelligence and how that can impact their social communication. The intervention described in this thesis could become a tool to help children with LI develop better emotional intelligence.

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

**Summary:** The purpose of this study was to investigate how children with SLI participated in a group task that required negotiation and mutual decision-making. The authors observed 18 triads, each consisting of 1 target child and 2 partners. The target children were 6 children with SLI, 6 chronological age (CA) matched peers, and 6 language score (LS) matched peers. All of the children in the triad earned tokens and were given the instructions that they could turn their tokens in for a reward that would be shared as a group. In the CA and LS triads, all of the children were involved in the negotiation process. The children with SLI were less involved and demonstrated lower levels of negotiation strategies. The children with SLI were also more rigid about their choices and preferences.

**Relevance:** This study lends support to the fact that children with LI have difficulty in social situations. The authors also state that there is a need for interventions to target social communication in children with LI. A child with LI's difficulty with emotional intelligence affects these interpersonal negotiation skills. If emotional intelligence is improved, it could generalize to helping improve negotiation skills for children with LI.

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

**Summary:** The purpose of this study was to examine attempts of children with specific language impairment (SLI) to access ongoing interactions with other children. The children were divided into 18 triads for a total of 54 children. Each triad consisted of one target child (SLI) and two partners, one chronologically matched child and one typically developing language-age similar children. The two partners were introduced into a room with toys and began to interact with each other. The target subject was then brought into the room and left to access the interaction. Each interaction was transcribed and analyzed for utterance production, utterances addressed to each child, access episodes, partner inclusion bids, and participation in group activity. The target subjects were compared to the 2 partners in their triad to consider the number of utterances produced and the number of utterances addressed to each participant. The children with SLI took more time to access conversations and had considerable more difficulty accessing the interactions. Because the children were older (between 8-12 years) than children studied by other researchers, it also demonstrated that these difficulties of children with SLI do not resolve over time.

**Relevance:** Children with SLI have a difficult time accessing conversations. Being able to access a conversation is an essential part of appropriate social communication. Also, these difficulties will not become easier as the child develops. Accessing conversations is a skill that children with SLI need help developing.

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

**Summary:** The purpose of this study was to examine a group of children with SLI to determine their ability to dissemble (hide) an emotion according to social display rules. The participants included 19 children with SLI and 19 typically developing children. The participants were presented with social situations and then answered questions assessing their comprehension, the intended emotion, the need for dissemblance, and their understanding of display rules. The answers to each question were scored as correct (1) or incorrect (0). All of the participants performed well in answering the comprehension questions and both groups were similar in their ability to infer the emotional reactions of characters in the situations. The group with SLI responded less frequently that the story's main character (Chris) should dissemble his/her emotional reaction. However, both groups indicated that Chris' parents would want him/her to dissemble his/her emotions more often than they indicated that Chris should dissemble his/her emotions.

**Relevance:** This study looked at the emotional competence of children with LI. It indicated that children with LI have difficulty with emotion recognition and expression. It provides strong evidence that interventions targeting emotional competence, such as this thesis, are necessary and important for children with LI.

Cloward, R. (2012). *The milk jug project: Expression of emotion in children with language and impairment and autism spectrum disorder*. (Unpublished honors thesis), Brigham Young University, Provo, Utah.

**Summary:** The purpose of this study was to compare baseline and post-treatment peer conversations for use of emotion-based words and overall sociability. The participants included 6 children who were identified as having a social communication problem, 4 children were diagnosed with LI and 2 children were diagnosed with ASD. The treatment consisted of a story enactment approach that highlighted emotion words. Prior to and following the treatment, each participant and 2 typically developing peers were given a group task. The results were variable. Overall, the target children participated less in peer interactions but for most of the participants, socialization increased.

**Relevance:** This study examined the same participants as the current thesis. The author of this study looked at the emotion word production and socialization of the participants, but only over baseline and follow-up sessions. This is relevant because it demonstrated if the participants showed any generalization from the treatment. The results suggest that the intervention might have been effective in improving certain areas of social communication.

Conti-Ramsden, G., & Botting, N. (2004). Social difficulties and victimization in children with SLI at 11 years of age. *Journal of Speech, Language, and Hearing Research, 47*, 145-161. doi: 10.1044/1092-4388(2004/013)

**Summary:** The authors examined patterns and feelings of victimization, social and behavioral difficulties in children with SLI. These authors also considered relationships between (a) social difficulties and language ability and (b) between social difficulties and nonverbal cognition. Participants were selected at the age of 7 and then participated in a follow-up study several years later. Questionnaires were administered to the target children and their teachers. Overall, children with SLI had poor friendships. About 1/3 of the participants were bullied and between the ages of 7 and 11, the children tended to show increases in behavior problems.

**Relevance:** This study highlights the fact that social difficulties that accompany language difficulties do not disappear or lessen over time. These social difficulties need to be addressed as soon as possible in order to help children create friendships and positive social interactions. This thesis looks at a social communication intervention that could address these issues.

Cornett, A. (2012). *Outcomes of a social communication intervention on the use of emotion words*. (Unpublished master's thesis), Brigham Young University, Provo, Utah.

**Summary:** This study looked at the emotion-based word production of children with LI over the course of a social communication intervention. The participants included 3 male children diagnosed with LI. All of the participants received a social communication intervention that used story reenactment. The results were variable for all 3 children, but did show some promise of being effective in helping the children improve in their emotion-based word production and accuracy.

**Relevance:** This study used the same participants as this current thesis. However, the data were analyzed differently in order to document growth. The analysis performed more recently was more sensitive to the appropriate production of emotion-based words over the course of treatment.

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

**Summary:** The purpose of this study was to compare the access behaviors of children with SLI with typically developing peers. The study used 38 children total, 13 subjects and 25 partners. The participants included 5 children diagnosed with SLI, 4 age matched peers, and 4 language matched peers. Each subject was put into a triad with 2 partners. The 2 partners were introduced to each other and once they were comfortable, the subject was brought into the room and left to access the partners' interaction. Three of the five children with SLI were unable to access the interactions. The children that were able to access the interactions had higher receptive language scores than those who were unable. Those who did not achieve access demonstrated more observing of their partners instead of approaching them or participating in task-related behaviors.

**Relevance:** This study showed that children with SLI have more difficulty accessing interactions than typically developing children. This thesis is based on the assumption that children with LI have these kind of social difficulties and need intervention to help overcome the problems.

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

**Summary:** In this book, Denham described the concept of emotional competence. She explained that social and emotional competence are linked. Therefore, a breakdown or delay in emotional competence will affect one's social competence. Denham also reviewed the literature on the emotional understanding of children and proposed areas that need further research. In doing so, Denham considered a range of issues, such as the impact of parental support on emotional development. She suggested that interventions need to be developed to target emotional competence. Denham greatly emphasized the need for early intervention in developing emotional competence.

**Relevance:** This book is a great resource when learning about emotional competence and what comprises emotional competence. She outlined the individual pieces clearly and also described the interplay between emotional and social competence. This thesis looks at children who have language difficulties and emotional competence difficulties. These are exactly the type of child that Denham described in her book as needing intervention as early as possible.

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

**Summary:** The purpose of this study was to determine if a social communication intervention could increase children with LI's ability to recognize their own comprehension difficulties and then produce a request for clarification to repair the comprehension problem. The participants included 4 children identified with LI who had difficulty monitoring their own comprehension of spoken speech. An intervention was implemented that focused on behaviors that accompany active listening, detecting and reacting to trouble sources that would interfere with the ability to listen (e.g., speaking quickly, background noise, etc.). The intervention also addressed how to react to messages that the children could not understand because of vocabulary or complexity. The results showed improvement for each of the 4 children. It was also suggested that the strategies that were taught and used in the intervention showed signs of generalization.

**Relevance:** This is one of the first studies to consider how effective a social communication intervention program was for school-aged children. The promising results paved the way for more interventions and studies to be designed to create more effective research and treatment approaches for children with LI. The authors stated that more research needed to be done on social communication interventions.

Durkin, K., & Conti-Ramsden, G. (2007). Language, social behavior, and the quality of friendships in adolescents with and without a history of specific language impairment. *Child Development, 78*(5), 1441-1457. doi: 10.1111/j.1467-8624.2007.01076.x

**Summary:** The purpose of this study was to observe the relationship between language ability in middle childhood and the quality of friendships during mid-adolescence. The authors predicted that the more severe the disorder, the poorer the long-term social outcomes would be. Participants included 120 adolescents with SLI and 118 typically developing adolescent peers. All participants completed a battery of tests and questionnaires to determine the quality of their friendships, social functioning, and language abilities. Overall, the participants with SLI were more likely to exhibit poorer quality of friendships than their typically developing peers. These poorer friendships were even more pronounced in adolescents with SLI who had a mix of expressive and receptive difficulties.

**Relevance:** The authors noted that there is a great need to determine which children with SLI have these types of social difficulties and to provide intervention as early as possible. This thesis used a social communication intervention for young children, trying to fill that need for intervention earlier in the child's school years. The Durkin and Conti-Ramsden study also highlights that the social difficulties of children with SLI do not dissolve over time. These are long-term difficulties that the children need help addressing.

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*(1), 21-30.

**Summary:** The purpose of this study was to determine if children with LI have difficulties identifying and making inferences based on facial expressions. Participants included 12 children with LI and 12 age-matched typically developing peers. The authors looked at the emotions *happy*, *surprised*, *mad*, and *sad*. For each of the 4 emotions, 3 stories were created in 3 different modalities for a total of 9 stories for each emotion. The modalities included visual only, verbal only, and visual and verbal combined depictions. The children with LI demonstrated difficulty making social inferences about a character's feelings. The group with LI also made more valence errors than the typically developing group. The use of visual and verbal modalities appeared to improve all the children's accurate responses to the facial expressions task.

**Relevance:** This study highlighted the deficit of emotion inferencing in children with LI. Because of this deficit, there is a need for intervention in developing this skill. The ability to make inferences about emotion was targeted in the intervention used in this thesis. This thesis also used multiple modalities to better teach the children with LI. This article supported the use of multiple modalities.

Ford, J. A., & Milosky, L. M. (2008). Inference generation during discourse and its relation to social competence: an online investigation of abilities of children with and without language impairment. *Journal of Speech, Language, and Hearing Research*, 51(2), 367-380. doi: 10.1044/1092-4388(2008/027)

**Summary:** The purpose of this study was to observe children with and without LI to determine their ability to make online emotional inferences during conversation comprehension identify variables that might predict emotion inferencing, and observe how it affected their social competence. A total of 32 children participated in this study, 16 children with LI and 16 typically developing children with typical language skills. The children were asked to perform several different tasks that involved short stories about the emotions *happy*, *sad* and *afraid*. The participants needed to name the facial expression that appropriately completed each story. However, the facial emotion did not always match the implied emotion. The children with LI did not demonstrate differences in their response time to naming emotions in matched and mismatched pictures. Typical children did produce a lag, with naming taking longer during the mismatched condition. This difference suggested that typical language children were more likely to infer emotional states during conversation. This was demonstrated by the children with LI lack of differences in their response time which indicated that they were not activating emotion knowledge but rather just naming the facial expression that they saw. The authors suggested that a part of children with LI's emotion inferencing deficits may be due to incomplete knowledge of situations that cause a particular emotion.

**Relevance:** This study supported the finding that children with LI have difficulty with emotion inferencing, an important aspect of emotional competence. The authors' suggestion that children with LI have an incomplete knowledge of emotion-causing situations was also targeted by this thesis as the clinicians discussed and explained each situation and why characters felt the way they did.

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: 10.1044/0161-1461(2002/008)

**Summary:** The authors' purpose was to define emotion regulation and examine its relationship with language ability. The participants included 41 children with LI and 41 typically developing children. Each of the child's teachers completed the Emotion Regulation Checklist (ERC). The teachers did not know the purpose of the study. The results demonstrated that those children with LI had significantly lower emotion regulation scores than their typically developing peers. The authors suggested that it was possible that the difference represented a general bias towards individuals with disabilities. More likely, however, was that it indicated that the emotion regulation skills of these children were poor, and that language ability and emotion regulation were related. There was a larger performance gap between the older children with LI and their typical peers, which suggested that these emotional difficulties do not resolve over time. This study was one of the first to provide evidence that children with LI have emotion regulation difficulties.

**Relevance:** This study is relevant to this thesis because it shows that children with LI have difficulty with this important piece of emotional competence. This study also emphasizes the need to develop interventions that address these difficulties because children with LI's difficulties with emotional competence do not resolve over time.

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*(1), 3-19. doi: 10.1044/0161-1461(2012/11-103)

**Summary:** This study assessed a pilot intervention that was created to increase the number of validating comments that children with LI produce. The participants included 4 children with LI who were all enrolled in elementary, mainstreamed classes. The Teacher Behavior Rating Scale (TBRS) was used to assess each child's sociability and cooperative learning tasks were used to establish baseline and follow-up data. The authors' felt that because the teachers were unaware of the intervention's nature, the teachers' responses were genuine. Several of the children did learn to make positive comments to their peers. However, the treatment did not help all of the participants improve in their use of positive comments.

**Relevance:** This study was one of the few that targeted social communication skills for school-aged children with LI, the same population that was targeted in this thesis. This study was valuable because it demonstrated the need for more research in this area and it showed that children with LI can make some improvements with intervention.

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

**Summary:** The authors observed the relationship between emotion regulation, language ability, and reticent behavior of children with SLI when compared to typically developing peers. A total of 86 children participated in this study, 43 were classified with SLI while the other 43 were age-matched, typically developing children. The teachers of each of the children completed the ERC and the TBRS to assess emotional expressions and withdrawal and sociable behaviors. The results of the typical children's checklists were compared to the checklists of those with SLI. The results of this study demonstrated that language ability and emotion regulation are powerful tools in predicting reticence in children with SLI. Overall, the children with SLI demonstrated more reticence and were poorer at regulating their emotions.

**Relevance:** This study indicated that the reticence commonly observed in children with SLI was not entirely the result of their language problems. By highlighting the differences in emotional competence between children with LI and typically developing children, it also indirectly supports the need to develop interventions to address deficits in emotional competence.

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

**Summary:** This study analyzed children with LI's ability to understand emotion conveyed by prosody in a short narrative passage. A total of 38 school-aged children participated in this study, with 19 being identified with LI and 19 gender- and age-matched, typically developing children. The children were presented with recordings of a passage was read to portray either the emotion of *happiness, fear, anger, or sadness*. The children were then asked to label the emotion that was being portrayed. Overall, the typically developing children performed significantly better than the children with LI. The children with LI had more difficulty in recognizing the emotion conveyed by prosodic cues than their typically developing peers.

**Relevance:** This study identified a particular difficulty that children with LI have with emotional competence. This outcome highlights the need for the development of interventions that target emotional competence. This thesis attempts to work towards the development of such interventions.

Gerber, S., Brice, A., Capone, N., Fujiki, M., & Timler, G. (2012). Language use in social interactions of school-age children with language impairments: An evidence-based systematic review of treatment. [Review]. *Language, Speech, and Hearing Services in Schools, 43*(2), 235-249. doi: 10.1044/0161-1461(2011/10-0047)

**Summary:** This study aimed to review interventions that addressed social communication disorders, and then determine areas that need more research in this field. The authors used conducted an Evidence Based Systematic Review (EBSR). The authors focused on school-aged children with LI. The studies that were reviewed were published between 1975 and June 2008 and were found in 22 different databases and represented 11 different treatment approaches. A total of 8 studies were included in the EBSR. Each study was analyzed for its methodology. After reviewing the articles, the authors concluded that more research needed to be done to address social communication deficits in children with LI. There was only preliminary evidence to support the interventions reviewed.

**Relevance:** This study was extremely important to this thesis. It stated the need for social communication interventions to be created and evaluated for efficacy. This thesis looked at a social communication intervention in order to determine if it was effective in increasing the production of emotion words in children with LI. This thesis is attempting to fill the need that the authors pointed out.

Hadley, P. A., & Rice, M. L. (1991). Conversational responsiveness of speech- and language-impaired preschoolers. *Journal of Speech and Hearing Research, 34*(6), 1308-1317.

**Summary:** The purpose of this study was to examine the language of children with differing levels of speech and language difficulties to determine differences in their social interactions with peers. Eighteen children were recruited for the study (4 with LI, 4 with speech impairment (SI), 4 with marginal language, and 6 with typical language). Each child was observed as they interacted with peers and teachers. The responses during partner interactions were recorded. Results showed that children with LI and SI were more often ignored by the conversational partners and responded less to conversational turns. The children with LI and SI were also more likely to interact with adults rather than their peers.

**Relevance:** This study demonstrated how children with LI's communication abilities effected their peer interactions. These children participated less than typical peers, which can lead to a variety of social difficulties. This thesis used a social communication intervention to increase an aspect of emotional competence in children with LI in hopes that this improved ability would ultimately impact their social interactions.

Harris, J. (2011). *The effects of a literature based emotion recognition program on teacher report of sociability and withdrawal for 6 children with social communication difficulties*. (Unpublished master's thesis), Brigham Young University, Provo, Utah.

**Summary:** This study analyzed teacher's perceptions of the social behaviors of children with LI after receiving an intervention targeting emotion understanding. A total of 6 children were used in the study, 2 children with ASD and 4 children with LI. A social communication intervention was administered that utilized story reenactment. Emotions of characters were emphasized through the stories. The TBRS was given to the students' teachers before and after the intervention. Following the intervention, teachers noted that 2 of the participants showed general positive behavior changes, 3 participants demonstrated a decrease in solitary-active withdrawal, and 5 participants earned higher prosocial behavior ratings. The author concluded that the treatment was able to influence general social behaviors in these children with LI, with a particular emphasis on solitary-active withdrawal.

**Relevance:** This thesis was a part of this larger study. It analyzed different pieces of data gathered from the same treatment sessions.

Holder, H. B., & Kirkpatrick, S. W. (1991). Interpretation of emotion from facial expressions in children with and without learning disabilities. *Journal of Learning Disabilities*, 24(3), 170-177.

**Summary:** This study compared typical children and children with learning disabilities (LD) in their ability to label photographs of facial expressions in the emotions of *happiness*, *sadness*, *anger*, *fear*, *surprise*, and *disgust*. Forty-eight children made up the group with LD while the control group consisted for 46 typically developing children. A total of 36 photographs were shown to each child. The child then labeled the photograph with an emotion. Their response times and accuracy was recorded. The results indicated that the children with LD were poorer at labeling emotions than their typically developing peers. Overall, the male participants had a lower response time but the females were more accurate.

**Relevance:** This study is relevant to this thesis because it supports the argument that children with language difficulties have difficulties recognizing emotion. This thesis used a similar picture identification task to determine where each child was during the baseline and follow-up studies.

Horowitz, L., Jansson, L., Ljungberg, T., & Hedenbro, M. (2005). Behavioural patterns of conflict resolution strategies in preschool boys with language impairment in comparison with boys with typical language development. *International Journal of Language and Communication Disorders*, 40(4), 431-454. doi: 10.1080/13682820500071484

**Summary:** This paper described the behaviors of children with LI and typically developing children when in conflict with same age peers. The authors particularly wanted to observe any conflict resolution strategies. The participants included 11 boys with LI and 20 language-typical children who participated in unstructured play together. Conflicts during the playtime were noted and recorded to determine the behavioral sequences. Overall, the boys with LI attempted reconciliation in fewer conflicts. But the acceptance of reconciliation was similar across both groups. More conflicts were caused by aberrant causes in the children with LI group (aberrant meaning "conflicts initiated by inappropriate behavioral play intensities). The authors suggested that children with LI need to learn to apply language and communication skills in peer interactions.

**Relevance:** This study illustrated a difficulty that children with LI have with resolving conflict in peer interactions. They also noted the need for help in generalizing the skills that are taught in an intervention. The intervention used in this thesis targeted emotional competence which could lead to helping children with LI's conflict resolution skills and the generalization of these skills into other areas of social interactions.

Jerome, A. C., Fujiki, M., Brinton, B., & James, S. L. (2002). Self-esteem in children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 45*(4), 700-714.

**Summary:** The purpose of this study was to examine if and how language ability affected the self-esteem or perceptions of competency in children with SLI and typically developing children. Of the 80 children used in the study, 40 of them were classified as SLI while the other 40 were considered as typically developing language skills. Each participant completed a self-report that measured self-esteem. The questionnaires addressed the areas of scholastic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct. The younger group of children did not differ from their peers in their self-perception. However, in the older groups of children, there were greater differences between the children with SLI and the typical peers in their self-perceptions of scholastic competence, social acceptance, and behavior.

**Relevance:** This study illustrated the impact that LI can have on self-esteem and sense of self-worth in children diagnosed with LI. It also illustrates the importance of early intervention as the differences between the children with LI and their typical peers grew as the children matured.

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

**Summary:** This study examined how effective a treatment program was in improving the story-telling abilities of a child with LI and LD. An 8-year-old male participated in this study. Two oral and written stories were collected from the child to determine his story-telling skills both before and after the intervention. Overall, the intervention appeared to be successful in improving the child's story-telling abilities. Improvements were made in both oral and written stories. Teachers and parents both indicated that he showed improvements in other contexts, meaning that the intervention targets may have generalized.

**Relevance:** This study specifically examined how effective a social communication intervention was for a school-aged child with LI. This is the same population that this thesis examined. The Klecan-Aker work shows promising results as the child produced improvements and some generalization due to a social communication intervention. This study and this thesis had different treatment goals, however, they used a similar type of study and the same population.

Law, J., Garrett, Z., & Nye, C. (2004). The efficacy of treatment for children with developmental speech and language delay/disorder: a meta-analysis. *Journal of Speech Language and Hearing Research, 47*(4), 924-943. doi: 10.1044/1092-4388(2004/069)

**Summary:** This article reported the results of a meta-analysis that was performed to evaluate interventions for children with developmental speech and language delays or disorders. The authors found a total of 33 different trials in 36 different papers. The results showed that speech and language therapy can be effective for children with phonological or expressive vocabulary difficulties. However, there was little evidence to support the effectiveness of intervention for children with receptive language difficulties. There were no significant differences found between the interventions given by clinicians or trained parents. If the intervention lasted longer than 8 weeks, it increased the chances of positive outcomes.

**Relevance:** This article supported the claim that longer interventions can be more effective. Especially when dealing with children with language difficulties. This is important to keep in mind as the intervention used in this thesis is considered and future interventions developed.

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

**Summary:** This study examined the attempts of children with SLI to access interactions with other children and also examine how the children with SLI participated in the interactions. The authors placed 10 children with SLI and 13 typically developing children in separate triads. The total number of participants was 69, but only 23 were considered as target children. Each target subject was introduced into a room with 2 unfamiliar peers. All of the children were told they had to remain in a certain area of the room the whole time. The children's interactions were then observed. Overall, the results demonstrated that the children with SLI had a tendency to wait for an invitation to join the interaction rather than initiating the access independently. Even when the children with SLI accessed the conversation, they were more reticent and remained on the outside of the interaction.

**Relevance:** The subjects used in this study and the current thesis were diagnosed with language deficits. This study showed how difficult accessing an ongoing interaction is for these children. This thesis hoped to improve social functioning, such as accessing interactions, by targeting emotional competence.

McCabe, P. M., & Meller, P. J. (2004). The relationship between language and social competence: How language impairment affects social growth. *Psychology in the Schools, 41*(3), 313-321. doi: 10.1002/pits.10161

**Summary:** In this study, 36 children with SLI and 35 non-language impaired (NLI) children participated. Each of their parents and teachers were given the Social Skills Rating System (SSRS) to assess social skills, responsibility, and problem behaviors. The two groups were compared in peer likeability, sociometric status, parent- and teacher-behavior ratings, emotional knowledge, and language development. The teachers' and parents' responses were combined to create a likeability measure for each child. The children also ranked the participants on how much they liked to play with each child and to point to which child was their friend. Participants were also asked to label and point to cartoons displaying emotions. The children were also assessed by listening to short stories where the characters acted in appropriate and inappropriate ways according to the correct emotion. The SSRS results suggested that children with SLI demonstrated less assertiveness, socialization, self-control, and empathy. The authors felt that the results indicated that children with SLI may have difficulty understanding the correct emotion for a situation.

**Relevance:** This study highlighted the difference between children with LI and their typically developing peers. This study also looked at some aspects of emotional competence and described some of the tasks with which children with SLI have difficulty. This thesis used a social communication intervention to teach and support emotional competence.

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

**Summary:** The purpose of this study was to observe, analyze, and compare the conversational repair skills of children with PLI, SLI (without pragmatic difficulties), and typically developing children. A total of 9 children participated in this study. They were divided into 3 groups with 3 children in each group. The groups were 2 groups with LI and 1 typical language group. The 2 groups with LI differed in their difficulty with pragmatic skills. The children with PLI participated in 6 weeks of intervention that targeted repair strategies while the children with SLI participated in 6 weeks of intervention that targeted language structure. Although the typical language group did not receive any treatment, they showed improvement between the baseline and follow-up tasks. The group with SLI (whose treatment focused on language structure) did not show any improvement between the baseline and follow-up tasks. However, the group with PLI (who received pragmatic skills treatment), showed a significant rise in initiating repairs with a 78% improvement.

**Relevance:** This study provides evidence that when pragmatic skills are targeted in intervention they can improve a child's social competence. By showing that this type of intervention can show positive growth in a child's social functioning, it creates a need for interventions that target social skills to be developed. The intervention used in this thesis was created to help children with LI develop their social skills.

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

**Summary:** This study considered whether a pragmatic language skills program could successfully be taught to children with learning disabilities. The study included a total of 20 school-aged children who were divided onto 2 groups. Baseline measures determined that the goals of the intervention needed to be conversation, internal responses, and description of objects. The results demonstrated that all participants improved in each area targeted during treatment. Teachers and parents of the participants also reported that the participants showed improved conversational skills over the course of the intervention.

**Relevance:** This study also provides evidence that when pragmatic skills are targeted in intervention, they can improve a child's social competence. The parent and teachers' reports also indicate that the improvements can generalize from outside the therapy room to other conversational contexts. This thesis focused specifically on the development of emotional competence which a piece of the internal responses that was targeted in this study.

Salovey, P., Detweiler-Bedell, B. T., Detweiler-Bedell, J. B., & Mayer, J. D. (2008). Emotional intelligence. In M. Lewis, J. M. Haviland-Jones & L. F. Barrett (Eds.), *Handbook of Emotions* (3rd ed., pp. 533-547). New York, NY: Guilford Press.

**Summary:** The purpose of this chapter was to define emotional intelligence and discuss the multiple abilities that contribute to this construct. The authors looked specifically at perceiving, understanding, regulating, and utilizing emotional information. The authors argue that over years of research, it has been documented that a primary source of motivation for human actions is emotion. The authors discuss how the perception of emotion, the use of emotions, the understanding of emotions, and ability to manage emotions make up emotional intelligence. Those who are emotionally intelligent are able to use their emotions to effectively cope with life. There are a variety of measures used to determine emotional intelligence, however no single method has been used as the primary means to measure emotional intelligence. Research on methods to determine emotional intelligence is still relatively new and can continue to be explored.

**Relevance:** This chapter is relevant because it describes the current view on emotional intelligence and reviews the research on what has been done to quantify emotional intelligence. Because no single method has been determined to be better than the others, this thesis was able to use an indirect measurement system to assess the participants' emotional intelligence.

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

**Summary:** The participants of this study were tested on their ability to infer emotional reactions of a character in a social situation. Forty-three school-aged children with LI and 43 children with typical language participated in this study. Each participant was presented with 16 short stories in which a character was placed in a situation that elicited the emotion of *happiness*, *anger*, *fear*, or *sadness*. The participants were asked to label which emotion the character most likely felt in the situation. Every fourth story, the children were asked to explain why the character felt that way. Overall, the children with LI had more difficulty talking about these emotions than their typical peers. The children with LI also performed poorer on identifying the intended emotion accurately.

**Relevance:** This study demonstrated the difficulties that children with LI have with emotional competence. Even when language was accounted for and pictures accompanied each story, the children with LI still performed worse than the typical children. This adds evidence to the need for social communication interventions, such as the one used in this thesis, to be developed in order to help children with LI improve in their emotional competence.

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

**Summary:** The aim of this study was to compare the emotion understanding of children with LI to their typically developing peers. Forty-three children with LI and 43 gender- and age-matched children participated. The children were asked to participate in 2 tasks; labeling facial expressions and labeling the emotion expressed by music. Identifying the emotion of *fear* was difficult for both groups of children, but the children with LI were less accurate in identifying *disgust* and *surprise*. The task involving music was used because it decreased any linguistic demands on the child. The response agreement between children with LI was less than the response agreement between the typical children. This could indicate that children with LI recognized emotional expressions differently than their typically developing peers.

**Relevance:** The emotions probed in this study during the identification task were the same as the emotions used in this thesis. The children in both studies had difficulty with *fear*, *surprise*, and *disgust*. This study helped establish the difficulties that children with LI have with identifying emotions.

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

**Summary:** The purpose of this study was to examine the implementation of a narrative-based language intervention (NBLI) and the feasibility of NBLI becoming an independent, stand-alone intervention based on if the children enjoyed the activities and if the clinician was able to easily implement it. Ten school-aged children with SLI participated in the study. Each participant was asked to tell a story using provided pictures. However, the resolution of the story was left out. The goal was to increase the children's use of complex grammatical forms found in stories. The clinician read a story that highlighted the targeted forms. The child then retold the story with help from the clinician. Overall, most of the participants improved in their narrative quality. However, the authors could not confirm if this was due to the NBLI. With the increase of scores following intervention, however, the results suggest that NBLI may become an option for intervention with children with SLI.

**Relevance:** This study highlighted the difficulties that children with LI have with conveying a cohesive narrative. This lack of cohesion can negatively impact their communication skills. The children who participated in my thesis were also identified with LI. Stories and narratives were used in both this study and this thesis. Although no definitive conclusions were drawn about the NBLI, more research could be done to determine its efficacy in teaching those with LI in many different areas of communication.

Timler, G. R. (2008). Social knowledge in children with language impairments: examination of strategies, predicted consequences, and goals in peer conflict situations. *Clinical Linguistics and Phonetics*, 22(9), 741-763. doi: 10.1080/02699200802212470080/02699200802212470

**Summary:** The purpose of this study was to compare the social knowledge of children with LI to their typically developing peers. Twenty-four school-aged children participated in this study, 12 with LI and 12 typically developing. Each child was asked about hypothetical situations in which there was peer conflict. The questions were open-ended or multiple choice. Teachers and parents also completed the SSRS to measure social skills and problem behaviors of each of the children. The results of the study showed that when resolving conflict, the children with LI were less likely to use prosocial skills. The parent and teacher reports were in disagreement, however, this could be due to the different contexts in which parents and teachers see the child. The authors suggested that children with LI may need to be receiving more support to improve their social communication needs.

**Relevance:** This study demonstrated the differences between children with LI and their typically developing peers in response to conflict. Results support the need for social communication interventions for those who have social skills or behavioral problems. In this thesis, emotional competence was targeted with the hopes that the participants would generalize the ability to handle and resolve conflict.

**Appendix B****Accuracy Percentage of Emotion-Based Words Produced Per Session**

Session No.	<u>BS</u>					
	Happiness	Sadness	Anger	Fear	Surprise	Disgust
Baseline 1	67(4/6)	71(5/7)	43(3/7)	0(0/7)	0(0/2)	0(0/2)
Baseline 2	100(8/8)	100(7/7)	50(3/6)	0(0/6)	0(0/2)	0(0/2)
Baseline 3	100(9/9)	0(0/6)	62(5/8)	0(0/7)	0(0/3)	0(0/2)
1	88(8/9)	50(3/6)	75(6/8)	0(0/1)	---	---
2	100(2/2)	50(2/4)	33(1/3)	100(1/1)	---	---
3	100(6/6)	100(1/1)	100(2/2)	---	0(0/1)	---
4	100(5/5)	100(1/1)	---	75(3/4)	---	---
5	100(8/8)	100(2/2)	100(4/4)	0(0/1)	---	---
6	100(12/12)	100(2/2)	67(2/3)	---	---	---
7	100(5/5)	100(2/2)	100(3/3)	100(2/2)	100(1/1)	---
8	100(2/2)	---	100(3/3)	67(2/3)	---	---
9	100(7/7)	100(5/5)	100(2/2)	0(0/1)	80(4/5)	---
10	89(8/9)	100(1/1)	87(7/8)	---	---	---

11	100(9/9)	100(1/1)	100(4/4)	0(0/1)	50(1/2)	---
12	100(3/3)	100(2/2)	50(1/2)	75(3/4)	0(0/1)	---
13	100(8/8)	100(1/1)	50(2/4)	---	100(1/1)	---
14	100(3/3)	---	100(2/2)	---	100(3/3)	---
15	100(12/12)	100(2/2)	100(1/1)	100(2/2)	100(3/3)	---
16	100(4/4)	75(6/8)	83(10/12)	---	100(1/1)	---
17	100(7/7)	---	---	---	75(3/4)	---
18	100(2/2)	64(7/11)	100(3/3)	---	100(1/1)	---
19	100(10/10)	100(5/5)	100(4/4)	---	100(4/4)	---
20	100(4/4)	100(2/2)	100(1/1)	---	---	---
Follow-up 1	100(10/10)	71(5/7)	83(5/6)	14(1/7)	100(3/3)	0(0/2)
Follow-up 2	91(10/11)	57(4/7)	63(5/8)	0(0/7)	100(3/3)	0(0/2)
Follow-up 3	100(12/12)	5/7(7/1)	75(6/8)	0(0/7)	100(3/3)	0(0/2)

Session No.	<u>MW</u>					
	Happiness	Sadness	Anger	Fear	Surprise	Disgust
Baseline 1	82(9/11)	50(3/6)	50(3/6)	20(1/5)	0(0/1)	0(0/3)
Baseline 2	75(6/8)	75(6/8)	29(2/7)	71(5/7)	75(3/4)	0(0/3)
Baseline 3	33(3/9)	83(5/6)	25(2/8)	28(2/7)	67(2/3)	0(0/3)
Baseline 4	87(7/8)	71(5/7)	16(1/6)	14(1/7)	0(0/2)	0(0/3)
1	20(1/5)	67(2/3)	40(2/5)	0(0/2)	0(0/2)	---
2	89(8/9)	100(4/4)	50(3/6)	67(2/3)	67(2/3)	---
3	40(2/5)	100(4/4)	33(2/6)	---	67(2/3)	---
4	75(3/4)	60(3/5)	22(2/9)	14(1/7)	0(0/1)	---
5	80(8/10)	---	---	0(0/1)	---	---
6	100(3/3)	100(1/1)	---	55(5/9)	---	---
7	100(16/16)	50(1/2)	67(2/3)	---	0(0/1)	---
8	100(4/4)	33(1/3)	37(38)	---	---	---
9	100(5/5)	---	100(3/3)	---	0(0/2)	---
10	---	---	0(0/2)	---	0(0/2)	---
11	100(6/6)	70(7/10)	57(4/7)	80(4/5)	50(2/4)	---

12	100(4/4)	100(1/1)	---	0(0/6)	75(3/4)	---
13	100(5/5)	0(0/1)	40(2/5)	---	---	---
14	91(10/11)	87(14/16)	25(2/8)	25(1/4)	38(3/8)	---
15	100(1/1)	---	67(6/9)	50(5/10)	---	---
16	100(15/15)	---	100(1/1)	---	---	---
17	100(12/12)	60(9/15)	82(14/17)	---	---	---
18	67(4/6)	100(4/4)	50(1/2)	---	---	---
19	100(2/2)	100(3/3)	60(3/5)	---	---	---
20	80(8/10)	83(5/6)	50(3/6)	---	50(3/6)	---
Follow-up 1	87(7/8)	57(4/7)	16(1/6)	0(0/7)	0(0/3)	0(0/3)
Follow-up 2	50(4/8)	28(2/7)	0(0/7)	0(0/7)	2/3(6/7)	0(0/1)
Follow-up 3	62(5/8)	57(4/7)	43(3/7)	0(0/7)	2/3(6/7)	0(0/3)

Session No.	<u>TS</u>					
	Happiness	Sadness	Anger	Fear	Surprise	Disgust
Baseline 1	80(8/10)	60(6/10)	33(3/9)	45(5/11)	0(0/3)	0(0/6)
Baseline 2	100(8/8)	57(4/7)	57(4/7)	57(4/7)	0(0/4)	0(0/3)
Baseline 3	90(9/10)	100(7/7)	50(2/4)	57(4/7)	0(0/3)	0(0/7)
Baseline 4	100(8/8)	62(5/8)	55(2/4)	50(4/8)	0(0/3)	0(0/4)
Baseline 5	100(10/10)	87(7/8)	50(4/8)	62(5/8)	0(0/6)	0(0/3)
1	100(5/5)	100(5/5)	87(7/8)	0(0/1)	0(0/2)	---
2	92(12/13)	83(5/6)	100(13/13)	0(0/2)	0(0/1)	---
3	100(6/6)	100(5/5)	100(8/8)	0(0/1)	---	---
4	50(1/2)	100(2/2)	100(3/3)	---	---	---
5	100(3/3)	100(1/1)	83(5/6)	50(1/2)	---	---
6	100(2/2)	100(1/1)	100(2/2)	---	---	---
7	100(4/4)	80(4/5)	62(5/8)	---	---	---
8	100(26/26)	67(2/3)	100(3/3)	---	0(0/1)	---
9	100(15/15)	---	100(1/1)	---	---	---
10	100(5/5)	89(8/9)	100(11/11)	---	100(1/1)	---

11	100(2/2)	---	100(2/2)	100(3/3)	0(0/1)	---
12	100(2/2)	67(2/3)	100(3/3)	---	100(2/2)	---
13	---	---	100 (7/7)	---	---	---
14	100(2/2)	100(2/2)	100(2/2)	100(3/3)	---	---
15	100(5/5)	100(1/1)	100(5/5)	25(1/4)	---	---
16	100(5/5)	---	100(3/3)	---	100(2/2)	---
17	87(7/8)	100(1/1)	50(2/4)	---	---	---
18	100(2/2)	---	100(4/4)	0(0/3)	---	---
19	89(16/18)	---	100(1/1)	---	67(2/3)	---
20	90(9/10)	75(3/4)	43(3/7)	---	50(1/2)	---
Follow-up 1	100(9/9)	89(8/9)	78(7/9)	75(6/8)	0(0/3)	0(0/4)
Follow-up 2	94(17/18)	100(9/9)	69(11/16)	70(7/10)	0(0/4)	0(0/3)
Follow-up 3	100(19/19)	70(7/10)	67(4/6)	94(15/16)	0(0/3)	0(0/3)

**Appendix C**

**Sample Lesson Plan**

(Harris, 2011)

RESPONSIVENESS LESSON PLAN 8 (lesson 2 F OHO)

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

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

Objective	Activities	Materials
1. Facial expression Labeling emotion Inferring emotion	Story and journal review from last session	Book: A Frog on His Own
1. Facial expression Labeling emotion Inferring emotion	Play the story  Emphasize frog’s motives. He wants to go off on his own for a while. He wants to join play or interaction with others but he disrupts play (conversation) instead. Emphasize his intentions (Does he mean to sink the boat?) Model complex sentence forms  Using the book, make dialog bubbles showing what characters want and how they feel in scenarios. Tell the story and read the bubbles with the child. For bubbles, use written words and line drawing of emotion.  Use Mind Reading videos to explore emotions and reactions to events	Book” Frog on His Own  Frog, dog, turtle, cat  Paper, crayons, pictures

		Mind reading
2. Understanding differing emotions Inferring emotions	Role play with child a real life scenario reading the emotions of others while entering play and while maintaining play. Example, a boy likes to play with blocks. How might he feel if we ask him to play blocks?	Props as needed
3. Journaling-all appropriate target areas for the activities	Highlight what we learned today. Highlight re: anticipating effects of actions on others	Crayons and markers, journal,

**COMMENTS:**

**Subjective:** Presents subjective information/impressions; background information

**Objective:** Presents objective information obtained from the session(s)

Script for Objective 1:

Introduce A Frog on His Own

1. page one: Reintroduce characters—where are they going? What do you think they are planning?

2. page two: look at what the boy is doing, where is he looking? What is he interested in? How about the dog? The turtle? What is the frog doing? Who knows sees him jumping out? (the turtle)

3. page three: what does the boy do? Who goes with him? What is the frog doing? (waving goodbye). What do you think the frog would want to do? What is he planning? How would he feel to be alone? How would you feel?
4. page four: Where is the frog? How does he feel? What do you think he might do?
5. page five: What is the frog doing? (Wow! He has a long tongue! He is sticking it out. That surprised me!) Why is he doing that?
6. page six: What does the frog have? Why did he catch the bug? What is he going to do with that bug? Do you think the frog likes to eat bugs? Would you like to eat a bug? (Talk about “disgusting” and feeling disgusted). Different people like different foods. Give some examples. Review previous lunch bag activity.
7. page seven: Look at the frog. How does he feel? (surprised—maybe a little scared). What has happened? What happened to that bug?...
8. page eight: The bug is a big hornet (bee). The bug is flying away. How did the bee get out of the frog’s mouth? What did the bee do to the frog? How does the frog feel? Did you ever eat anything that hurt your tongue? How did you feel?
9. page nine: Something different is happening in this picture. Look at these people. What are they doing? Why is the lady sitting on the ground? What are they going to do? Oh wait, where is that frog? Can you see him? He is hiding. He is watching the man and the lady. How does he feel? What would he like to do? (Join the picnic). I wonder what the frog will do. Can you guess?
10. page ten: What are the man and the lady doing? Where is the frog? Oh wow-what is he doing? Why does he want to be in the basket? Do the man and lady know the frog is in the basket? What could happen? How will the man and lady feel if the frog eats the lunch? How will the man and lady feel if the frog jumps out?
11. page eleven: What is the lady doing? Where is her hand? What could happen here? Where is the frog’s hand? Does she know there is a frog in the basket? How will she feel if she sees that frog? What will she do?
12. page twelve: What happened? What is the frog doing? How does the frog feel? Does he like the lady? What would he like to do? (Have lunch with the lady?) How does the lady feel? How does the man feel? How would you feel if you found a frog in your lunch? What will happen now?
13. page thirteen: Oh, look what happened. What did the frog do? What is the lady doing? How does she feel? What is the man doing? How does he feel? (Highlight the fact that the lady is mad and the man thinks it’s funny. They feel different things.) How does the frog feel? Where do you think he is going?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Appendix D**

**Emotion Word Coding Manual**

Participant Initials:

Session Number and Date:

Length of Video:

<b>Emotion-Based Word (Child's Production)</b>	<b>Category of Child's Emotional Response</b>	<b>Category in Error (Target Production)</b>	<b>Production and Target Match</b>	<b>Time of Production</b>	<b>Type of Production</b>	<b>Correct Valence vs. Incorrect Valence</b>	<b>Over-extended</b>

Examiner:

**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 the clinician attempted to elicit are considered inaccurate and record the intended category of emotion state. For example, the clinician was attempting to elicit *sad* but the child said happy, the category in error was *sad*.

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

+ = Correct (production and target word match)

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

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

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

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

**Cued (C):** Emotion words produced after phonological cues (e.g., the clinician says “/s/” in order to elicit “sad”), semantic (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/Imitation (R):** The clinician produces an emotion word and within the next five seconds, the child repeats it (or a simplified form of it). If either the clinician or child produce 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, than the valence is positive. If the character or child is coming out worse than he or she started, than the valence is negative).

+ = Correct valence

- = Incorrect valence

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

**Special Coding Considerations**

Code the following:

1. Specific names for emotions (e.g., sadness, happiness, anger, etc.)
2. Adjective forms of emotion words (e.g., excited, scared, annoyed, etc.)
3. The verbs *like*, *love* and *hate*
4. Words describing facial expressions associated with specific emotions (e.g., “She feels *frowny*”  
Or “That’s a *scary* face”)
5. Verb forms of emotion words that are produced in a way to elicit emotion (e.g., to excite, to surprise, to frighten, etc.)
6. Child’s response is phrased as “feels \_\_\_\_” or when the child answers the question “how does he feel?”

Do not code the following:

1. Adjectives describing actions or appearances (e.g., funny, cute, silly, weird, etc.)
2. Expletives and interjections (e.g., Whoa! Hey! Dang it, etc.)
3. Child’s response is phrased as “is \_\_\_\_” or “in \_\_\_\_”
4. Apologies and “sorry”
5. Crying, in pain, laughing, smiling, determined

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

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

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

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

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

## Appendix E

### Permission Forms for Children with LI

#### Parental Permission Form

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

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

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

**Risks/Discomforts:** There are no known risks associated with this treatment. Your child may miss class for one extra session of therapy a week during the course of the study. Your child's school clinician will either be present or close by during all therapy sessions to handle any questions or difficulties that may arise as a result of working in the treatment conditions. Clinicians and supervisors will consult regularly to make sure that your child is not experiencing any problems in the treatment conditions. The only other discomfort is that the questionnaire I will ask you to complete will take about 20 minutes of your time.

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

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

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

**Participation:** Participation is voluntary. If you give permission to include your child in the study, he/she will also be asked if he/she would like to participate. Even if you give consent, you and your child have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your class status, grade or standing with the school.

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

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

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

Signature \_\_\_\_\_ Date \_\_\_\_\_

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

**Video Release Form**

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

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

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

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

Name \_\_\_\_\_

### Teacher Permission Form

**Introduction:** I am Professor Martin Fujiki, Brigham Young University. I am doing research to develop therapy procedures to help children with communication problems improve their social interactional skills. Children who are receiving speech and language services as well as some typically developing children in your class are being invited to participate in this research.

**Procedures:** Children with communication problems will be enrolled in a 10-week study. During this time intervention will focus on teaching social communication skills. Therapy will be provided by a combination of BYU graduate students in Communication Disorders and the child's school clinician. All treatment will take place at school. As part of the assessment and follow up I will be asking you to complete a social skills questionnaire for each child in your class before and after the intervention takes place.

**Risks/Discomforts:** There are no known risks/discomfort aside from the time that it will take to complete the questionnaire. It is 72 questions long and will take about 10 minutes, per child, to complete.

**Benefits:** Completing this questionnaire will help me determine if the social communication intervention is effective. Overall, this research will help educators work with the social problems experienced by most children with communication problems.

**Confidentiality:** Be assured that participation will be confidential. All materials will be stored in a locked cabinet at BYU. Names will be removed from research materials and neither your name nor your students' names will ever be used in connection with any presentation of this research.

**Compensation:** We will compensate you \$5 as a thank you for your participation.

**Participation:** Participation is voluntary. You may withdraw at any time.

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

**Questions about your Rights as a Research Participant:** If you have questions regarding your rights as a research participant, you may contact the BYU IRB Administrator, A-285 ASB, Brigham Young University, Provo, UT 84602, 801-422-1461, [irb@byu.edu](mailto:irb@byu.edu).

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

Signature \_\_\_\_\_ Date \_\_\_\_\_

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

## Child Permission Form

### Introduction

My name is Martin Fujiki. I work at Brigham Young University. I study the way that children learn to communicate with other people. I am working with children who work with Mrs./Ms./Mr. (*child's clinician*) \_\_\_\_\_. I would like your help.

### What Will Happen (Procedures)

I will ask you to do several things. I will ask you to play some games with other children. I may also ask you to work with other children on an art project. You will do all the work at school. It will take an hour or less each time. You will come to work with us during your speech time.

### Possible Problems (Risks)

You will miss some class time. I will work with Mrs./Ms./Mr. (*Child's teacher*) \_\_\_\_\_ to make sure than you do not miss things in class that are really important or really fun.

### Good things that will happen and what you will get (Benefits and Compensation)

You will get to pick a sticker or small prize every time you work.

### Who will know about this work (Confidentiality)

You, your parents, and your teacher will know that you are working with us. No one else at your school will know. We will not put your name on any of our papers. We will not put your parents' names or your teacher's names on any of our papers. We will keep all of our papers and work locked up in a cabinet at BYU.

### Working with us (Participation)

You do not have to work with us if you don't want to. You may quit this work any time you want to. You will still get your prize.

**Questions**

If you have any questions, please ask me. You can also ask your parents or your teacher. If you want to ask someone else questions about this work, you may contact the BYU IRB Administrator, A-285 ASB, Brigham Young University, Provo, UT 84602, 801-422-1461, [irb@byu.edu](mailto:irb@byu.edu).

\_\_\_\_\_ I want to take part in this study.

\_\_\_\_\_ I do not want to take part in this study.

Signature \_\_\_\_\_ Date \_\_\_\_\_

## Appendix F

### Permission Forms for Typically Developing Children

#### Parental Permission Form

**Introduction:** I am Professor Martin Fujiki, Brigham Young University. I am doing research to develop therapy procedures to help children with communication problems improve their social interactional skills. Your child is being invited to participate because I need typically developing children to participate in two group activities with the children receiving treatment at (Vineyard Elementary School/Northridge Elementary School). [*appropriate school to be inserted individually for each child*]

**Procedures:** Children with communication problems will be enrolled in therapy to improve their social communication skills. Your child would participate in an interaction with a small group of children (including a child enrolled in therapy). No individual session will last more than one hour, and your child will be involved in one or two sessions. During the sessions the children will participate in activities such as playing a cooperative game or completing an art project, etc. All of these sessions will take place at your child's school during school hours. We will work with school personnel to make sure that missed time causes the least amount of disruption possible. All sessions will be video recorded to allow researchers to analyze the group interaction. Only the project staff will have access to these recordings. The recordings will be erased following completion of the analyses.

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

**Risks/Discomforts:** There are no known risks associated with participation. Your child may miss a maximum of 2 hours of class time. School personnel and students from BYU will either be present or close by during all therapy sessions to handle any questions or difficulties that may arise. The only other discomfort is that the questionnaire I will ask you to complete will take about 20 minutes of your time.

**Benefits:** There are no direct benefits to your child. There are benefits to society in that these procedures may result in more effective treatment procedures for children with communication problems.

**Compensation:** Your child will receive a small prize such as a sticker as a thank you for participation in the study even if he/she does not participate in an entire session.

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

**Participation:** Participation is voluntary. If you give permission to include your child in the study, he/she will also be asked if he/she would like to participate. Even if you give consent, you and your child have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your class status, grade or standing with the school.

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

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

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

Signature \_\_\_\_\_ Date \_\_\_\_\_

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

**Video Release Form**

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

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

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

Name \_\_\_\_\_

### Teacher Permission Form

**Introduction:** I am Professor Martin Fujiki, Brigham Young University. I am doing research to develop therapy procedures to help children with communication problems improve their social interactional skills. Children who are receiving speech and language services as well as some typically developing children in your class are being invited to participate in this research.

**Procedures:** Children with communication problems will be enrolled in a 10-week study. During this time intervention will focus on teaching social communication skills. Therapy will be provided by a combination of BYU graduate students in Communication Disorders and the child's school clinician. All treatment will take place at school. As part of the assessment and follow up I will be asking you to complete a social skills questionnaire for each child in your class before and after the intervention takes place.

**Risks/Discomforts:** There are no known risks/discomfort aside from the time that it will take to complete the questionnaire. It is 72 questions long and will take about 10 minutes, per child, to complete.

**Benefits:** Completing this questionnaire will help me determine if the social communication intervention is effective. Overall, this research will help educators work with the social problems experienced by most children with communication problems.

**Confidentiality:** Be assured that participation will be confidential. All materials will be stored in a locked cabinet at BYU. Names will be removed from research materials and neither your name nor your students' names will ever be used in connection with any presentation of this research.

**Compensation:** We will compensate you \$5 as a thank you for your participation.

**Participation:** Participation is voluntary. You may withdraw at any time.

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

**Questions about your Rights as a Research Participant:** If you have questions regarding your rights as a research participant, you may contact the BYU IRB Administrator, A-285 ASB, Brigham Young University, Provo, UT 84602, 801-422-1461, [irb@byu.edu](mailto:irb@byu.edu).

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

Signature \_\_\_\_\_ Date \_\_\_\_\_

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