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Outcomes of a Social Communication Intervention on the

Use of Emotion Words

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A thesis submitted to the faculty of
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Master of Science

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ABSTRACT

Outcomes of a Social Communication Intervention on the
Use of Emotion Words

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Master of Science

Children with language impairment (LI) have often been identified as having social communication breakdowns. A number of these problems are likely the result of deficits in emotional competence. This thesis examines a social communication intervention designed to target the emotional competence of children with LI. Three elementary school-aged children with LI were recruited to receive twenty, 20-minute intervention sessions over the course of four months. Each intervention session involved a combination of activities targeting emotion recognition and emotion inferencing using story retell, story exploration, story enactment, perspectives charts, journal entries, emotion labeling, and personalization. These activities revolved around Mercer Mayer's *A Boy, A Dog, and A Frog* (1967) wordless picture book series. These books were used because of their age-appropriate subject matter and clear, simple depictions of character actions and facial expressions. To analyze the effectiveness of this intervention package in improving emotional competence, the number of emotion-based words belonging to the emotional categories of *happiness, sadness, anger, fear, surprise,* and *disgust* that were produced each session was counted. The percentage of appropriate usage was calculated to represent how often the participants used each emotion-based word in a semantically correct manner. Finally, emotion word productions that did not match the intended target word were analyzed for valence agreement. Results were highly variable but all three participants demonstrated improvements in the percentage of accurate productions in at least one emotional category. Although all three participants usually used words of a positive valence in an appropriate manner, inappropriate uses were also observed. When actual emotion-word productions mismatched the intended emotions, all three participants produced low valence agreement for words of positive valence and high valence agreement for words of negative valence. Further research is warranted but results suggested that this particular social communication intervention was effective in improving the production of specific emotion words by children with LI.

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Introduction

Elementary school-aged children identified with language impairment (LI) often demonstrate difficulties with social communication. However, a relatively limited amount of research exists about the efficacy of intervention methods designed to help these children improve their social communication skills. This thesis examines the effectiveness of a social communication intervention to increase the accuracy and variety of emotion-based words produced by school-aged children with LI.

Social Communication Problems in Children with LI

Children with LI experience a range of social communication problems. These children are often ignored by their peers during conversation (Hadley & Rice, 1991), which is compounded by the fact that many of these children will not attempt to enter conversation unless they are invited to do so (Liiva & Cleave, 2005). Researchers have also found that some children with LI have difficulty accessing ongoing peer interactions within a reasonable period of time (Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993; Liiva & Cleave, 2005). Brinton et al. (1997) observed that even when children with LI gained access to conversations, they were more reticent and less likely to make conversational contributions than the other group members.

Peer interactions pose a particular challenge. Children with LI frequently fail to collaborate with group members who are working on the same task (Brinton, Fujiki, & Higbee, 1998) and have poor sociable skills (Hart, Fujiki, Brinton, & Hart, 2004). Children with LI tend to respond to conversational partners with pragmatically inappropriate and decontextualized comments (Bishop, Chan, Adams, Hartley, & Weir, 2000) and often demonstrate poor usage of

cohesive devices in narratives (Swanson, Fey, Mills, & Hood, 2005). These types of issues make it difficult to interact with these children in conversation.

These social communication difficulties likely lead to interpersonal conflicts. Timler (2008) showed that children with LI do not respond to conflicts or attempt to resolve them in the same manner as their typically developing peers, which makes communicating with a child who has LI even more challenging. These difficulties are reflected by the outcomes of teacher ratings of behavior, which indicate that children with LI are often perceived as demonstrating more behavioral problems (Redmond & Rice, 1998) and more withdrawal behaviors than their peers (Fujiki, Brinton, Morgan, & Hart, 1999; Redmond & Rice, 1998). Observing natural interactions, Gertner, Rice, and Hadley (1994) found that typically developing children preferred playing with other typically developing children rather than those who had LI. This was later confirmed by Fujiki, Brinton, Hart, and Fitzgerald (1999), who found that children with LI had significantly fewer friends than typical children. These social difficulties all combine to have a detrimental impact on children with LI, who self-report lower levels of self-esteem (Jerome, Fujiki, Brinton, & James, 2002) and feel more victimized (Conti-Ramsden & Botting, 2004) than their peers.

Factors Influencing Social Communication in Children with LI

Emotional intelligence is one area of development that, when deficient, is likely to play a role in the social challenges of children with LI. Sometimes referred to as emotional competence, 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). It has long been recognized that some children with social communication problems experience difficulty with emotional

competence (e.g., children with autism spectrum disorders; Bartak, Rutter, & Cox, 1975). It has only recently become recognized, however, that children diagnosed with LI may also experience difficulties with perceiving, understanding, and regulating emotions (Brinton & Fujiki, in press).

One aspect of emotional competence involves a person's ability to perceive emotions. In 1991, Holder and Kirkpatrick examined the ability of children diagnosed with learning disability (LD) and their typical peers to recognize emotions that were conveyed by facial expressions. Children with LD were less proficient in identifying emotions than typical children, particularly the emotions of *disgust* and *surprise.* The inclusionary and exclusionary requirements that participants with LD had to meet in order to participate in this study were such that many of the children with LD would have qualified for a study of children with LI[1].

Spackman, Fujiki, Brinton, Nelson, and Allen (2005) asked children with LI and their typically developing peers to identify emotions that were conveyed by facial expressions. Children in both groups were successful in accurately identifying *happy, sad,* and *angry*; *fear* was more difficult for children in both groups. Similar to findings by Holder and Kirkpatrick (1991), children with LI performed significantly more poorly at accurately identifying *surprise* and *disgust*.

In addition to examining the ability of children to identify emotions conveyed by facial expressions, researchers have examined the significant role prosodic cues play in emotion perception. Boucher, Lewis, and Collis (2000) asked children to match vocally conveyed

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[1] Holder and Kirkpatrick (1991) used the following criteria for inclusion in the LD group: intellectual functioning within 1 *SD* of the mean, lower achievement levels than those of the same age and ability level, and a discrepancy between intellectual ability and achievement level. In this thesis, children with LI had to demonstrate average to above average IQ, score at least 1 *SD* below the mean on a standardized test of language ability, and be enrolled in speech and language services through their school. Many children who were included in the 1991 study could likely have been included in our 2011 study based on assessment results and inclusion/exclusion criteria.

emotions to photographs of facial expressions. They found that children with LI had difficulties matching the emotions depicted by facial expressions to the emotions depicted by vocal presentations, performing significantly more poorly than not only the typical children studied, but also children with autism spectrum disorders.

A 2008 study by Fujiki, Spackman, Brinton, and Illig examined the ability of children with LI to identify emotion conveyed by prosody. These researchers presented the same narrative passage, read to convey different emotions, to both children with LI and typical peers. Similar to earlier studies of facial expression recognition, *happy* was the easiest to identify and *fear* was the most difficult; children with LI performed significantly more poorly than typical children.

A more complex aspect of emotional competence is the ability to understand emotions. Ford and Milosky (2003) studied preschoolers with and without LI to see how well they could infer the expected emotional reactions of characters given a hypothetical situation. Children with LI performed significantly more poorly than their peers on this task. Children with LI were also more likely to make valence errors when the intended emotion was misidentified (e.g., confusing *happy* with *sad*). Ford and Milosky suggested that misinterpreting the valence of an emotion held the potential to seriously disrupt social communication and hinder the formation of friendships.

Spackman, Fujiki, and Brinton (2006) replicated Ford and Milosky's (2003) study with older, school-aged children with LI. Again, these children performed significantly more poorly than typically developing children. When asked to describe what certain emotions felt like, typically developing children gave more diverse scenarios and provided sophisticated synonyms.

Children with LI were more likely to repeat the same word they were asked to describe or answer with a tangential or inappropriate response.

In 2008, Ford and Milosky replicated their original experiment (Ford & Milosky, 2003) but with a new element—following the presentation of emotion-eliciting situations, children were shown a particular facial expression, sometimes matching and sometimes mismatching the intended emotion. Children with LI displayed no difference in response times between matched and mismatched facial expressions but typical children demonstrated a significant increase in response times between the two conditions. These results suggested that children with LI fail to anticipate or make inferences about emotional states that their peers are successfully catching on to.

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 nonstereotypical 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 non-language impaired children in stereotypical situations but not in nonstereotypical situations. The authors suggested that children with LI might have difficulty ascertaining appropriate emotions under certain circumstances.

The ability to dissemble, or hide, emotions when it is socially appropriate to do so is a relatively sophisticated aspect of emotion understanding. Brinton, Spackman, Fujiki, and Ricks (2007) tested children with LI to see if they were able to dissemble emotions when presented with hypothetical situations that warranted hiding the emotion. Both typical children and

children with LI failed to dissemble during certain situations but children with LI were much more likely to do so (e.g., telling a neighbor that they did not like the dinner she had made for their family). Surprisingly, children in both groups were able to accurately respond to what their parents would want or expect them to do in the same situation.

Finally, another aspect of emotional competence is the ability to regulate emotions. Emotion regulation involves not only controlling emotion, but also elevating it as is necessary for a particular context. Fujiki, Brinton, and Clarke (2002) compared children with LI and typically developing children to see if the two groups differed in their abilities to regulate emotions. Teacher ratings indicated that children with LI were, in fact, perceived as being less capable of emotion regulation. An additional finding was that older children with LI performed significantly more poorly than younger children with LI, suggesting the possibility that emotional competence in children with LI has the potential to decrease in relation to same-aged peers as these children mature and develop.

In a study examining the relationship between emotion regulation and language, Fujiki, Spackman, Brinton, and Hall (2004) found that emotion regulation and language ability were both highly significant factors in predicting levels of reticence (with less ability to regulate emotions and higher severity of LI indicating higher levels of reticence). Children with LI demonstrated particular difficulty getting "psyched up" or elevating their emotions when the task demanded it.

Effectiveness of Intervention in Addressing Emotional Competence

As indicated above, there is growing evidence that children with LI have problems with emotional competence. Still, there are relatively few documented intervention methods that have addressed these issues. The American Speech-Language Hearing Association (ASHA), in

collaboration with its National Center for Evidence-Based Practice in Communication Disorders (N-CEP) gathered a team of speech-language pathology professionals in an ad hoc committee on Language Use in Social Interactions in School-Aged Children (Gerber, Brice, Capone, Fujiki, & Timler, 2012). This committee was charged with systematically reviewing and appraising all available literature regarding social communication intervention for school-age children with LI. After an extensive literature review, the committee found a total of only eight studies on record that could be considered interventions targeting social communication skills in children with LI (Adams, 2001; Adams, Lloyd, Aldred, & Baxendale, 2006; Bedrosian & Willis, 1987; Dollaghan & Kaston, 1986; Klecan-Aker, 1993; Merrison & Merrison, 2005; Richardson & Klecan-Aker, 2000; Swanson, et al., 2005). All of these studies scored low enough on quality indicators to be considered as exploratory (Gerber et al., 2012).

Within the eight intervention studies that the committee identified, the treatment goals used in therapy targeted various skills such as 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). The only study to directly target emotional competence was performed by Richardson and Klecan-Aker (2000). In this study, intervention that targeted conversational skills, internal responses (both the receptive and expressive identification of emotions), and object description, resulted in improvements not only in all three of these targeted areas of social interaction, but also in other pragmatic areas not directly addressed during intervention. Based on these results, it is possible to hypothesize that a child with LI may learn

to improve his or her emotional competence (e.g., emotion perception, emotion understanding and emotion regulation) when these skills are directly targeted during intervention.

Since 2008 when ASHA's committee convened, only a few more studies have emerged focusing on pragmatic language intervention (Adams, 2008; Adams, Lockton, Gaile, Earl, & Freed, 2012; Fujiki, Brinton, McCleve, Anderson, & Chamberlain, in press). In response to Gerber et al.'s (2012) conclusion that social communication intervention is still in its infancy and further research is warranted, this study attempts to provide another look at the effects of social communication intervention on school-aged children with LI. This research project was similar to Richardson and Klecan-Aker's (2000) study in that emotional competence was the focus of social communication intervention.

Although emotional competence consists of a person's ability to perceive, understand, and regulate emotions (Brinton & Fujiki, in press), it is important to note that this thesis employs a method of analysis that utilizes emotion expression (the production of emotion words) as a measure of a child's general emotional competence. It is recognized that the production of emotion words is a relatively narrow measure of this much broader ability. Still, the accuracy with which emotion-based words are produced is quantifiable and does represent a naturalistic measure of the child's growing ability to manage emotions. The specific research questions addressed in this thesis included the following:

1. Did the children with LI increase in the appropriate usage of emotion-based words expressing *happiness, sadness, anger, fear, surprise,* and *disgust* during intervention?

2. When the children with LI misidentified the intended emotion, was the produced emotion-based word of the same valence as the intended emotion?

Method

This thesis was a part of a larger research project in which 6 children with poor social communication skills were treated with an intervention method targeting emotion understanding. Before receiving 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). Prior to beginning the intervention and following its completion, each participant completed the following scripted tasks as baseline and follow-up measures: a facial expression emotion recognition task, a topic maintenance task, an emotional inferencing task, and a spontaneous conversational sample. The purpose of this particular study was to examine whether or not there was an increase in the appropriate production of emotion words following intervention targeting emotion words. A single subject multiple baseline design was implemented to compare participants' expressive use of emotion labels pre and post treatment. Specifically, the emotions *happy, sad, angry, scared, surprised,* and *disgusted* were assessed.

Participants

Three children (2 boys, 1 girl) with LI participated in this intervention. These children ranged in age from 5;3 (years;months) to 6;10. All three participants were recruited from a local school with the help of the school's principal and speech-language pathologist. At the time of the intervention, all participants were receiving speech and language services through the school and some were receiving special education services through the school's resource program. A qualifying assessment revealed that 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.

Pure tone hearing screenings performed by either the district audiologist or school speech-language pathologist indicated that all three participants had hearing within typical limits. Descriptive data from pretreatment standardized assessments are presented in table 1.

Table 1

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

Participant	CASL[1] Scores					UNIT[2] Scores
	Core Composite	Antonyms	Syntax Const.[3]	Paragraph Comp.[4]	Pragmatic Judgment	Full Scale IQ Score
1	69	76	74	80	65	88
2	77	91	89	64	78	83
3	80	88	92	60	96	91

Adapted from Harris (2011)

[1] Comprehensive Assessment of Spoken Language (CASL)
[2] Universal Nonverbal Intelligence Test (UNIT)
[3] Syntax Construction
[4] Paragraph Comprehension

Participant 1 (6;10) was a Caucasian male diagnosed with LI. He began attending his school's special needs preschool at the age of 4 presenting with mild dysarthria and dysphagia. He was referred for speech services to address his poor articulation. During treatment, additional goals targeting language ability were added when it was discovered that participant 1 was beginning to lag behind his peers in overall language as well as articulation. When this study began, participant 1 was enrolled in first grade and was no longer receiving treatment for his articulation, dysarthria, or dysphagia. He continued to receive speech and language intervention for sequencing narratives, appropriate production of regular past tense verbs, and appropriate use of pronouns (Harris, 2011).

Participant 2 (5;8) was a Caucasian female initially identified with developmental delay[2]. The school speech-language pathologist indicated that participant 2 did not present with intellectually disability and her educational placement supported this observation. Her score of 83 on the UNIT (Bracken & MaCallum, 2003) also indicated that she was in fact near the typical range for cognitive functioning. Participant 2 was considered by the educational staff to be very shy. She was initially enrolled in the school's special needs preschool at the age of 3. At the start of the study, she was enrolled in a mainstream kindergarten class with one hour of pull-out resource support every day. Participant 2 received occupational therapy and adaptive physical education in addition to attending special classes for remedial skills in reading and math. Her language goals during speech and language intervention included answering story comprehension questions, retelling stories, and expanding general expressive and receptive vocabulary (Harris, 2011).

Participant 3 (5;3) was an African American male diagnosed with LI. He began attending the school's special needs preschool at the age of 4 when he received low scores in all areas of development, the lowest of which being in communication skills. Participant 3 presented with a reduced vocabulary and relied heavily on general vocabulary and familiar, over-used scripts in order to communicate. He was able to combine words together but did not produce sentences creatively. Participant 3's academic difficulties increased, and he began to lag even further behind typically developing peers of the same age. When this study began, Participant 3 was enrolled in mainstream kindergarten and was receiving pull-out resource support every day. His goals in speech and language included increasing his receptive and

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[2] All young children seen through the school district's early identification program received an initial diagnosis of developmental disability. This diagnosis was later changed as was appropriate on the basis of more detailed assessment information.

expressive vocabulary, answering questions, and understanding basic concepts such as spatial references (Harris, 2011).

Materials

Mercer Mayer Book Series. The *A Boy, A Dog and A Frog* (1967) series was utilized in the intervention. These books contained multiple, clear illustrations that depicted both people and animals with easily identifiable emotions using their facial expressions and body language. No text was used in these stories, thereby assuring that children with LI (such as the three participants in this study) would not be at any linguistic disadvantage for story comprehension. The lack of text required the participants to infer relationships, emotions, and character motives using only the illustrations that were provided (Harris, 2011). The subject matter of the stories was age appropriate and interesting (e.g., a boy who was having adventures and making friends with animals).

Toys for Enactment Activities. During the intervention, the participants were given many opportunities to reenact the *A Boy, A Dog and A Frog* (1967) stories using props. Toys such as a bucket, fishing pole, shovel, fishing net, plastic frog, plastic turtle, and stuffed dog were provided and allowed the children to explore and reenact each narrative. Each participant was encouraged to take on the different characters' thoughts, actions, and emotions while interacting with the props according to the outline of the story. During each session, a mirror was also available so the participants could observe their own facial features when mimicking the emotions observed throughout the narrative. The mirror was intended to enhance the ability to both identify and express emotions using facial expressions and body language.

Mind Reading Software. Mind Reading (Baron-Cohen, 2004) is an interactive computer program designed to help individuals improve in their ability to recognize emotions

conveyed by other people. For each word in the program's library of over 400 emotions, six different individuals (equal number of males and females, children and adults) demonstrated the facial expression and tone of voice that was typically associated with each emotion. Although multiple levels of difficulty were available, the three participants in this study functioned at level 1 (the most basic). Mind Reading was utilized in one session out of 20 for each of the three participants to better illustrate a key emotion that was being conveyed in the *A Boy, A Dog, and A Frog* (1967) stories (Harris, 2011).

Session Journal. At the end of each session, the participants were presented with crayons and a 3-ring binder filled with notebook paper. The participants were encouraged to draw, write and color anything in their journals that represented what was discussed during that day's session. The clinician labeled illustrations with captions describing which emotions, thoughts or scenes each child decided to draw. The journal contained perspectives charts where the children were asked to identify all the emotions experienced by a single character throughout the story. The clinician periodically reviewed this journal with each child to revisit the thoughts and emotions that had been discussed in previous sessions.

Procedures

Social communication intervention. Under the supervision of two master's level speech-language pathologists (the school speech-language therapist and the university clinic director), two graduate student clinicians administered each treatment session. The overall research project was supervised and coordinated by two doctorate level speech-language pathologists who specialize in clinical research with children with LI.

Each of the three participants received 20 one-on-one sessions with the clinician, each session lasting 20 minutes and taking place two to three times per week. Participant 1 completed

three baseline sessions prior to beginning treatment and completed three follow-up sessions following the completion of the treatment; participant 2 completed four baseline and three follow-up sessions and participant 3 completed five baseline and three follow-up sessions. Each intervention session focused on using familiar children's stories to highlight and practice emotion recognition and emotion expression. The sessions were tailored and adapted to meet each of the participant's specific needs (Harris, 2011).

Each session consisted of a combination of the following seven steps: retelling the story, exploring story ideas, reenacting the story, identifying character perspectives, making journal entries, labeling emotions, and responding to questions about personal experiences with emotions. First, the child and clinician looked at a book in the *A Boy, A Dog and A* Frog (1967) series together before the child attempted to retell the story to the best of his/her ability without receiving any cues or prompts. The child and the clinician would then go through the story together using a flexibly structured script that emphasized character emotions by labeling and inferring the emotions of the characters and the events that may have caused those emotional reactions (Harris, 2011). Following the story exploration, the child was encouraged to take on the perspective of one of the story's main characters to reenact the story using props. During the reenactment, the clinician pointed out character emotions and causal relationships. The child and the clinician then acted out emotions that contrasted with the emotions emphasized in the story reenactment. These contrasting emotions were put into a perspectives chart. Each participant then made a journal entry capturing the main points learned during the day's session. The clinician asked the child specific questions during the journaling activity in order to help the child make connections between the story and his/her own personal experiences. The children would then go through the story one more time and add thought bubbles to explicitly spell out

the thoughts and emotions of each character. Finally, the child drew him/herself into the story

with thought bubbles explicitly stating their own personal feelings about the circumstances and

events of the story. As the sequence of each treatment session became more familiar to the

clinicians and the participants throughout the duration of the project, some steps in the

intervention procedures were completed simultaneously or in a different order than originally

prescribed.

Analysis

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, and

frequently two, digital video cameras. All sessions took place in a quiet room at the participants'

elementary school. Each session was reviewed for the emotion-based words produced by the

child (emotion-based words produced by the clinician were not counted), 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., if the

child said "*mad*" when the intended word was "*sad*," the words had the same valence or tone; if

the child said "*happy*" when the intended word was "*sad*," the words had a different valence).

For the purpose of this thesis, an emotion-based word included specific names for human

emotions (e.g., *happy, angry, afraid*). Adjectives describing actions or appearances (e.g., *funny,*

cute, silly, weird) and expletives or interjections (e.g., *Whoa! Hey! Dang it*) were not considered

emotion-based words and were excluded from the data analysis (Cloward, 2012; Dunn,

Bretherton, & Munn, 1987; Ekman & Cordaro, 2011). The verbs *like, love,* and *hate* were

included due to their inherently strong valence and preferential nature although other verbs (e.g.,

want, need and verb forms of emotion words such as "*to scare*" or "*to hurt*") were excluded.

Words describing the facial expressions associated with each emotion were included in the data analysis (e.g., "she feels *frowny*" or "that's a *scary* face").

Words belonging to the *happiness* category were always considered to be of a positive valence. Words categorized as *sadness, anger, fear,* and *disgust* were always considered to be of a negative valence. *Surprise* was considered as either positive or negative valence depending on the context; productions belonging to this category were judged for valence on an individual basis. For each of the participant's emotion-word productions that did not match the intended word, actual productions were judged as being of the same valence or of a difference valence from the emotion word the examiner had attempted to elicit. A more detailed description of the coding guidelines is presented in Appendix D.

The appropriate production of targeted emotion words was monitored in baseline, intervention, and follow-up sessions. During baseline and follow-up, the following task was administered to each of the participants. The child was presented with a series of three-sentence narratives designed to elicit particular emotions. At the end of each narrative, the child was asked to verbally express how the character likely felt (e.g., *happy, scared, mad,* or *sad*). Each of the four emotions was tested three times. The number of appropriate productions, based on the total number of times the word was used, was calculated. For example, if a child produced the word *happy* in response to all 12 scenarios, the child's score would be 25%, because three of the productions would have been appropriate and the other 9 productions of *happy* would have been inappropriate.

Two emotions (*surprise* and *disgust*) were not tested during baseline or follow-up because the structured task did not examine these emotions. Further, *disgust* was not taught in the intervention. The emotional category of *surprise* was assessed in baseline by other tasks that

were not examined in this thesis, but it is included here because it was targeted in the intervention and was produced during these sessions.

In this particular study, the emotional category of *disgust* was treated as a control emotion because it was never specifically elicited, taught, or targeted during the intervention. Data for *disgust* words were collected in order to assess if this social communication intervention had any generalizing effect on the accuracy of emotion-word productions that were not specifically targeted. Idiomatic expressions indicating *disgust* (e.g., *yucky, gross, nasty*) were not counted as emotion-based productions. However, when these words were used in conjunction with emotion-based words such as *like* or *love*, the emotion-based words were sometimes grouped in the *disgust* category. For example, in the expression, "Ew! I don't like oranges!" the term "ew" was not analyzed but "don't like" was analyzed as an emotion-based production belonging to the *disgust* category.

During the intervention sessions the loosely structured script of the intervention sessions did not dictate a minimum or maximum number of emotion-based words to be produced in each session. Therefore, the number of emotion-based words produced was highly variable between both participants and sessions. The percentage of appropriate production for each emotion was again calculated based on the number of times that the words was used correctly out of the total number of times that it was produced.

Coding Reliability

Data analyses for baseline, treatment, and follow-up sessions were completed by one undergraduate and two graduate research assistants in Brigham Young University's Communication Disorders Department. The three research assistants independently coded

approximately 10% of the total sessions. Interrater reliability with the author of this thesis was

established at 86% with rater B and 93% with rater C.

Results

A percentage of appropriate usage was calculated for each session illustrating the number of emotion-based words that were accurately produced out of the total number of times the word was used regardless of accuracy. The valence of each emotion-based word that was produced by the participants was determined

Accuracy of Emotion Words Used in Intervention

Words examined included *happiness, sadness, anger, fear, surprise,* and *disgust*. The resulting percentages provided a session-by-session look at the ability of the participants to use each emotion-based word in a semantically appropriate manner. These data are presented in Figures 1 through 6. For the actual percentages for each emotion by participant, see the data tables in Appendix B.

Happiness. Accuracy percentages of emotion-based productions belonging to the *happiness* category are presented in Figure 1. Participant 1 demonstrated consistently high accuracy in *happiness* productions across baseline, intervention, and follow-up sessions. Relatively no change was observed. Participant 2 demonstrated surprising results; she actually decreased in her accuracy of *happiness* productions across all sessions. This was particularly evident when comparing her baseline measures (averaging 90% accurate) to her follow-up measures (averaging 56% accurate). To a large extent, this can be attributed to substitution of the word *happy* for other emotions, rather than a decrease in knowledge. Although participant 3 demonstrated almost no change throughout the intervention sessions, a comparison of his *happiness* productions at baseline (averaging 58% accurate) to those he produced at follow-up (averaging 83% accurate) indicated an improvement.
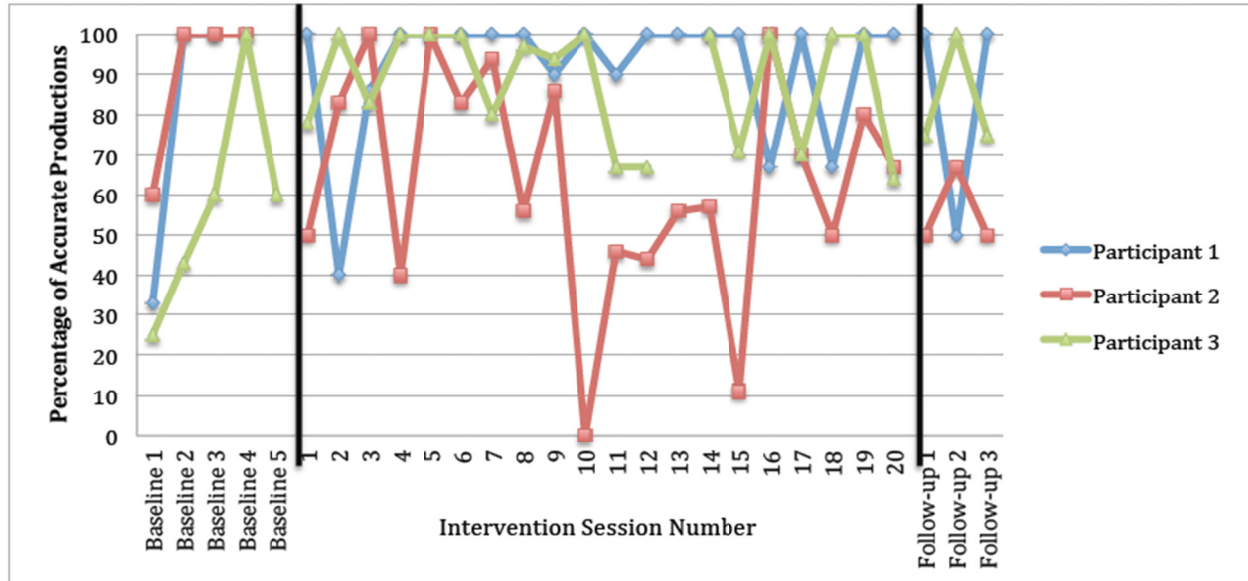
Figure 1. Accuracy of *Happiness*-Based Productions Per Session

Sadness. The percentage of *sadness*-based words that were accurately produced by each participant per session is presented in Figure 2. Participant 1 demonstrated general improvement in accuracy throughout the intervention. Performance was more variable in the first half of intervention. A notable difference was seen between accuracy percentages at baseline (averaging 38%) and follow-up (averaging 83%). Participant 2 remained consistent in her percentage of accurate productions belonging to the *sadness* category during the more structured baseline and follow-up sessions. During the intervention sessions, a rapid improvement was observed following session 6; participant 2 continued to demonstrate a generally high percentage of accuracy for *sadness* productions throughout the rest of the intervention. Participant 3 demonstrated improvement in his accuracy of *sadness* productions when comparing his baseline results (averaging 29%) with his follow up data (averaging 52%). During intervention, accuracy rapidly improved around session 5 and remained consistently high through most of the intervention sessions.
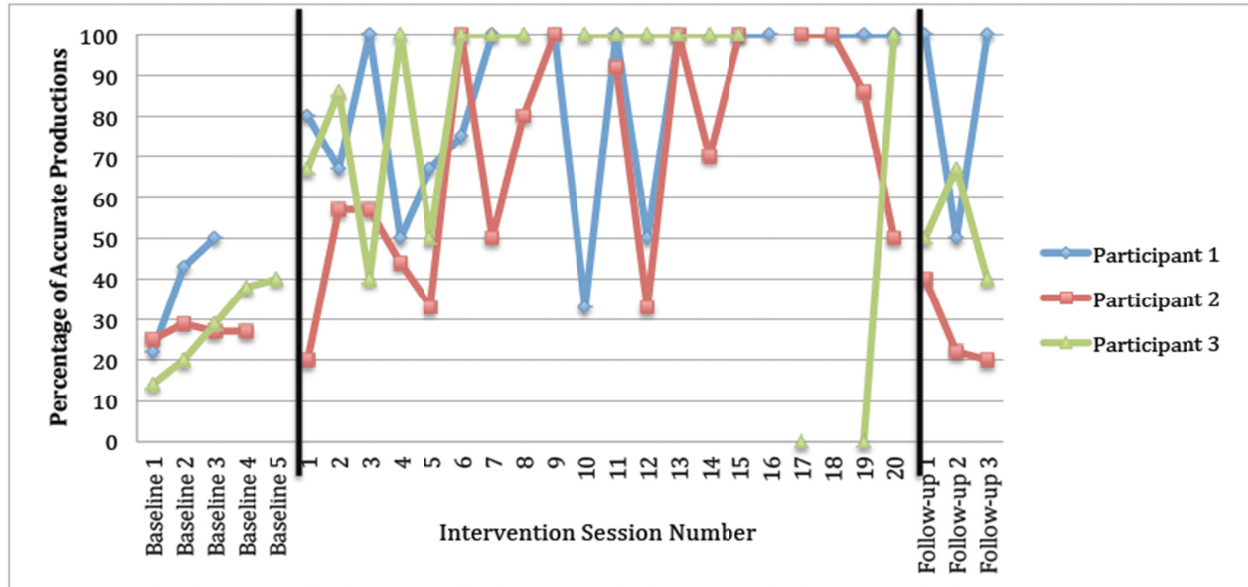
Figure 2. Accuracy of *Sadness*-Based Productions Per Session

Anger. Accuracy percentages for *anger*-based words that were produced by each participant during the intervention are presented in Figure 3. Participant 1 demonstrated a very early and rapid improvement in accuracy of *anger* word productions. This high percentage of accuracy remained consistent throughout the intervention sessions. A modest improvement was confirmed by an increase in the accuracy of productions between baseline (averaging 42%) and follow-up (averaging 56%). Participant 2 produced *anger* words with relatively consistent accuracy throughout the 20 intervention sessions. However, the fact that *anger* words were not produced in some earlier intervention sessions but were produced in all of the latter sessions suggested a slight improvement in appropriate use of *anger* words. Participant 2 did not produce any *anger* words accurately during her baseline or follow-up sessions so it was difficult to conclude if the intervention had an effect one her ability to use *anger*-based words in a semantically appropriate way. Participant 3 demonstrated a substantial improvement in the accuracy of his *anger*-based productions. Participant 3 went from producing *anger* words with 0% accuracy at baseline to 100% accuracy in every follow-up session. In fact, by session 5,

participant 3 maintained 100% accuracy of *anger* productions during all intervention sessions but one.
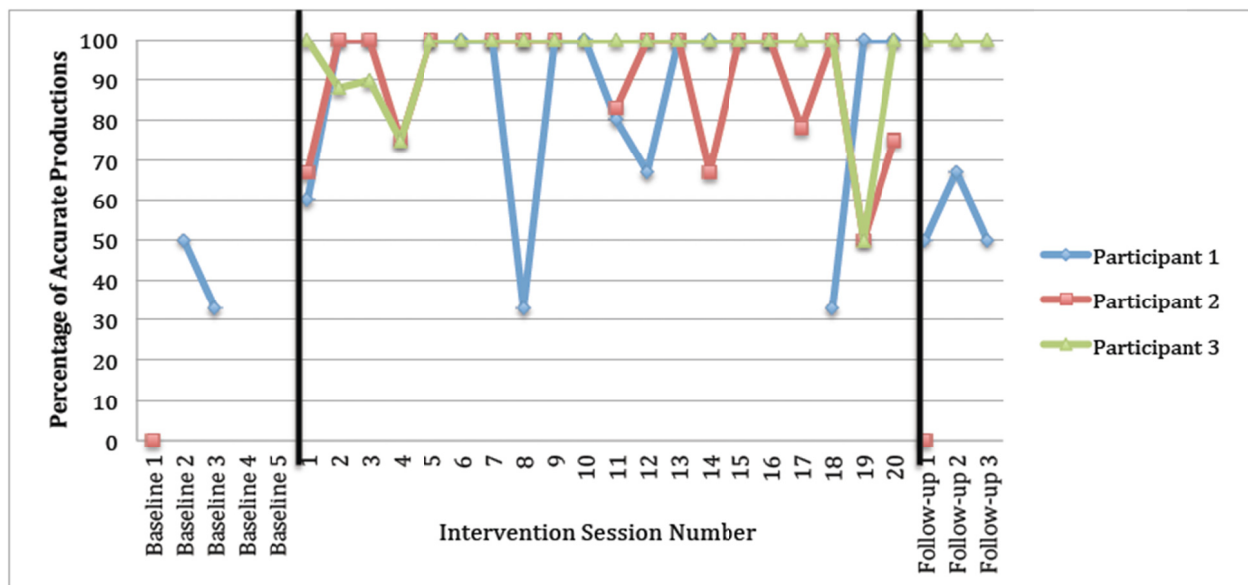
Figure 3. Accuracy of *Anger*-Based Productions Per Session

Fear. Percentages of *fear*-based words that were accurately produced by each participant throughout the intervention are presented in Figure 4. For participant 1, words belonging to the *fear* category were only produced in seven of the 20 intervention sessions. All except for two *fear*-based words he produced during the entire intervention were produced with 100% accuracy given the context of the conversation. Participant 2 also only produced words belonging to the *fear* category in seven of the 20 intervention sessions. Although almost no baseline or follow-up data for *fear* productions were available for pretreatment and posttreatment comparison, participant 2's data for her 20 intervention sessions did in fact indicate a slight increase in accuracy over time. Participant 3 only produced words belonging to the *fear* category in four of the 20 intervention sessions, but his accuracy was always 100%. Accuracy for *fear*-based productions during the structured tasks indicated an improvement between baseline (averaging 27% accurate) and follow-up sessions (averaging 67% accurate).
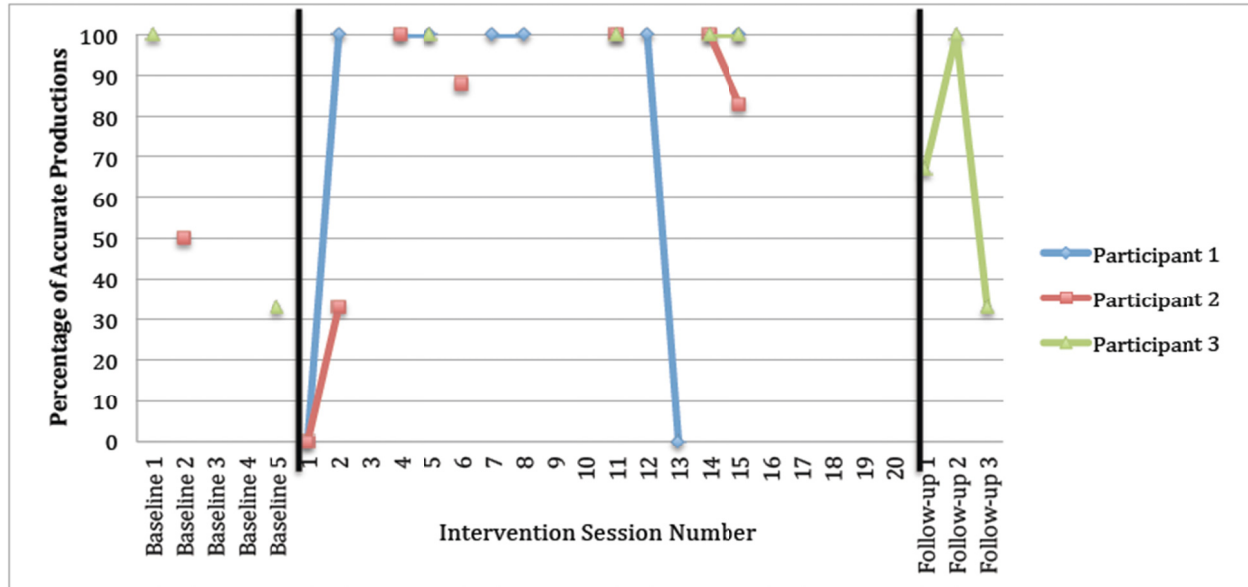
Figure 4. Accuracy of *Fear*-Based Productions Per Session

Surprise. Accuracy percentages for *surprise*-based words produced by each participant during the intervention are presented in Figure 5. No baseline or follow-up questions were designed to elicit any words belonging to the emotional category of *surprise*. Because of this, only data from the 20 intervention sessions could be considered. In the first 6 intervention sessions, participant 1 did not produce a single emotion-based word belonging to the *surprise* category. However, in session 7, participant 1 started producing *surprise* words with 100% accuracy in almost every intervention session. The fact that participant 1 suddenly began producing *surprise* words accurately in the middle of intervention suggested that the intervention was effective in teaching him to express the emotion of *surprise*. Participant 2 produced *surprise* words less often than participant 1 but she demonstrated early in intervention that she was capable of occasionally producing *surprise* words accurately. Results for participant 2 indicated that she also improved slightly in her accuracy by the end of the intervention. Although participant 3 demonstrated in the first session that he was capable of using *surprise* words correctly, he rarely did so during the first half of the intervention. Participant 3 demonstrated

much greater accuracy of *surprise* words in the latter half of intervention suggesting that he, too, may have experienced a learning effect from the intervention.
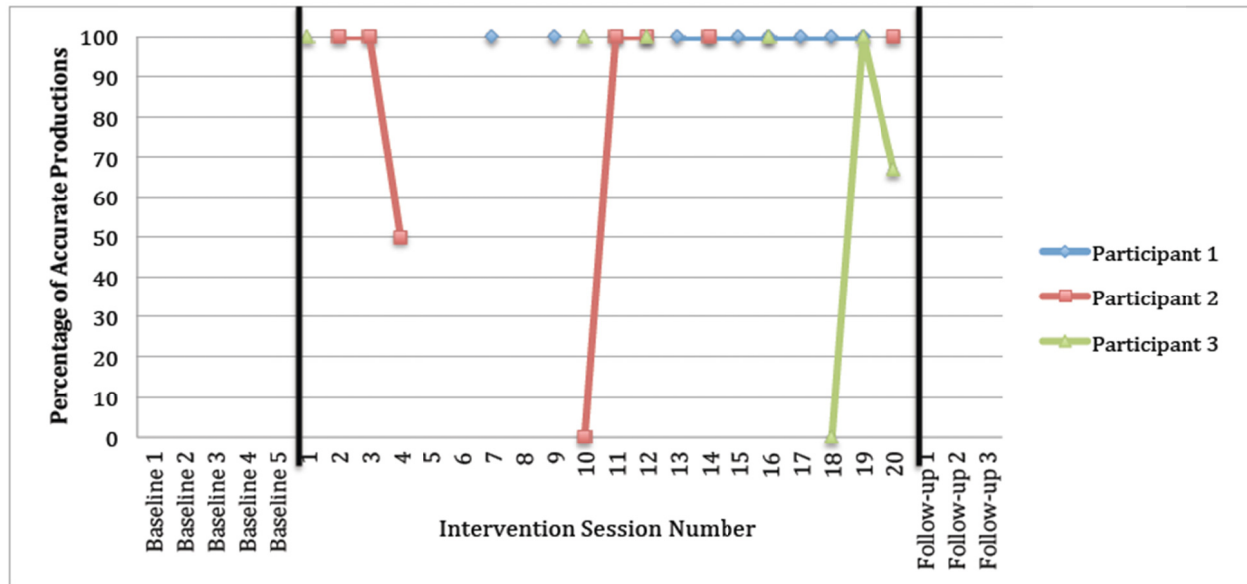
Figure 5. Accuracy of *Surprise*-Based Productions Per Session

Disgust. The accuracy of *disgust*-based words produced by each participant during the intervention is presented in Figure 6. Like *surprise*, *disgust* was one emotional category that was not specifically elicited during baseline and follow-up procedures. As a result, no pretreatment or posttreatment data for *disgust* words are available. Although participants 2 and 3 both demonstrated in a couple of sessions that they were capable of making an occasional production belonging to the *disgust* category, results suggested that overall, none of the participants demonstrated any change in their ability to use *disgust* words appropriately.
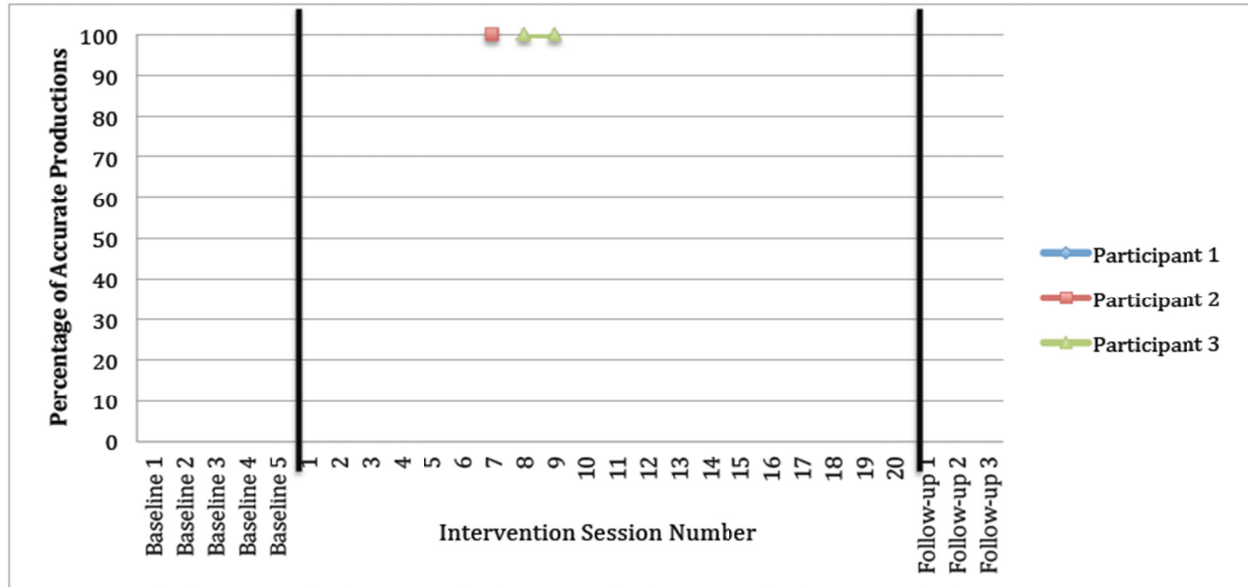
Figure 6. Accuracy of *Disgust*-Based Productions Per Session

Valence Agreement

For every emotion word that the participants produced, a valence was determined. All productions belonging to the *happiness* category and some belonging to the *surprise* category (e.g., if the context suggested an optimistic or pleasant tone) were considered to have a positive valence. All productions belonging to the *sadness, anger, fear* and *disgust* categories and some belonging to the *surprise* category (e.g., if the context suggested an unpleasant or disappointed tone) were considered to have a negative valence. For each of the times a participants' emotion-word productions mismatched the word the examiner had intended to elicit, valence agreement was determined using the parameters described above. Although all three participants demonstrated highly accurate usage of positive emotion words (e.g., *happiness* and occasionally *surprise*), these words were still sometimes used inappropriately. In the relatively few instances that positive emotion words were inappropriately produced, results indicated that the valence agreement between the intended emotion word and the word that was actually produced was quite small. For example, participant 1 demonstrated only 13% valence agreement (2/15

opportunities) in his inappropriate emotion-word productions. This meant that where participant 1 misinterpreted a positive emotion, he assumed (incorrectly) that the intended emotion was another positive emotion only 13% of the time; 87% of the time, his valence errors involved misidentifying a negative emotion for a positive emotions. For positive emotions, participant 2 demonstrated 12% valence agreement (9/73 opportunities) and participant 3 demonstrated 17% valence agreement (6/36 opportunities).

Although more errors were made in the production of negative emotion words (e.g., *sadness, anger, fear, disgust,* and occasionally *surprise*) by all three participants, valence agreement between these inappropriate productions and their intended target emotion words was much higher. For example, participant 1 demonstrated 89% valence agreement (40/45 opportunities). This meant that where participant 1 misinterpreted a negative emotion, he assumed (incorrectly) that the intended emotion was another negative emotion 89% of the time; he only misidentified negative emotions for positive emotions in 11% of the opportunities. For negative emotions, participant 2 demonstrated 75% valence agreement (99/105 opportunities) and participant 3 demonstrated 90% valence agreement (43/48 opportunities).

Discussion

Emotional competence has been broken down into three main components: emotion perception, emotion understanding, and emotion regulation (Brinton & Fujiki, in press). Emotion perception consists of the ability to recognize and identify emotions both within one's self and in others. Emotion understanding describes a person's ability to interpret and infer the emotional reactions of others. Emotion regulation refers to a person's ability to control or elevate emotions as needed. Denham (1998) suggested that emotional competence and social competence are inseparably connected to each other. As a result, breakdowns in emotional competence are likely to result in breakdowns in social communication. Children with LI often demonstrate social communication deficits, and many studies have shown that these deficits are likely linked to impaired emotional competence (Fujiki et al., 2002; Fujiki et al., 2008; Ford & Milosky, 2003, 2008; Spackman et al., 2005; Spackman et al., 2006).

Unfortunately, a relatively small number of studies exist which attempt to examine the efficacy of social communication intervention procedures designed to target deficits in emotional competence in school-aged children with LI (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. In the following section, the performance patterns of the participants and the valence errors they produced are discussed in addition to limitations of the study and directions for future research.

Summary and Reflection on Findings

The findings regarding each participant's accuracy in emotion word production and their patterns of valence agreement are presented. Overall results about the effectiveness of the

intervention in improving the participants' abilities to use emotion words and match the valence or tone of the intended emotion words are discussed.

Performance Patterns of Participants. Following intervention, participant 1 demonstrated improvements in the percentage of appropriate production of *sadness, anger,* and *surprise* words. No change was seen in the accuracy with which *happiness, fear,* and *disgust* words were produced. Participant 1's accuracy of *fear*-based productions was consistently high despite relatively few productions belonging to that emotional category. This finding suggested that participant 1 may have already had an understanding of *fear*. Similarly, there was no change in the accuracy of productions belonging to the *happiness* category. Participant 1 consistently produced these words in a semantically appropriate manner, which suggested that he likely had a sufficient understanding of what the word *happiness* prior to the intervention. There was no change in the production of *disgust,* but none was expected in that the intervention did not address this word. Accuracy percentages throughout baseline, intervention, and follow-up sessions improved considerably for *sadness* and *anger* productions, (and to a lesser degree, *surprise* productions) suggesting that the intervention was successful in teaching participant 1 to use those emotion words more appropriately.

Of the three participants, the intervention was the least effective for participant 2. The accuracy percentages of emotion-based words that participant 2 produced belonging to the *sadness, fear,* and *surprise* categories produced modest change during intervention. No change was seen in her ability to produce *anger* and *disgust* words appropriately; her ability to use *happiness* words appropriately actually appeared to decrease. Throughout the intervention, participant 2 was easily distracted and required frequent redirection to the task. Halfway through the intervention program, participant 2 began verbally expressing her lack of interest in the

treatment activities and often attempted to name a character's emotional state without looking at the picture. Most of her initial responses consisted of *happiness* words. The fact that many of these *happiness* responses were made without referring to the pictures of the characters was likely responsible for the decrease that was seen in participant 2's accuracy when producing words belonging to that category.

The data collected suggested that participant 3 benefited the most from this social communication intervention. Participant 3 demonstrated slight increases in the accuracy of productions belonging to the *happiness, fear,* and *surprise* categories; even greater improvements were observed in the accuracy of productions belonging to the *sadness* and *anger* categories. The only category in which participant 3's accuracy remained unchanged was *disgust*, which was expected. For this participant, the intervention seemed to be effective in teaching more appropriate usage of all five of the emotional categories that were specifically targeted during intervention.

In Summary, two of the three participants responded generally well to the intervention. Both of these children showed notable improvement in the production of specific categories of emotion words. The third child made some growth, but in general, did not respond as positively. It was of note that no gains were made in the category of *disgust*-based productions (the control emotion), thus suggesting that changes in the other categories were related to participation in intervention. All five emotional categories that were specifically targeted during intervention (e.g., *happiness, sadness, anger, fear,* and *surprise*) showed gains by at least one of the participants. Although each participant's performance was variable, the improvements in accuracy of emotion-based word production seen in this study show promise for this particular social communication intervention.

Valence Agreement. Valence errors (e.g., confusing negative for positive emotions) are concerning because such errors have the potential to seriously disrupt social interaction (Ford & Milosky, 2003). In the current study, valence errors were more likely to involve positive than negative emotions. Thus, the participants were much more likely to mistake positive emotions for negative emotions than the other way around (e.g., the participants would mistake *happiness* as *fear* more often than they would mistake *fear* for *happiness*). This phenomenon was likely due to the fact that out of the six emotions that were considered basic and universal, only *happiness* was always of a positive valence. On the other hand, four basic emotions (e.g., *sadness, anger, fear,* and *disgust*) were always of a negative valence. Only *surprise* varied in valence, depending upon context. The fact that there were more errors on positive emotion words should be considered in relation to overall rates of appropriate performance on positive and negative valence words. The number of valence errors on positive words was relatively small compared to the number of correct productions.

These findings suggested that children were more likely to make valence errors on positive than negative emotions. Because so few basic emotions are positive, however, the design of the study was biased toward confusing positive emotions for negative emotions rather than the other way around (e.g., *happy* was more commonly misinterpreted as *scared* than as *surprised*). Negative emotions were more commonly confused for other negative emotions rather than for positive emotions (e.g., *sad* was more commonly misinterpreted as *scared* than as *happy*). The generalizability of these findings to more spontaneous social interactions is unknown.

Limitations of the Study

There were a number of potential limitations to the study, which are discussed as follows. Because of the scripted nature of the baseline and follow-up procedures, multiple examiners could similarly administer the tasks in different sessions. However, because intervention sessions were by necessity only loosely scripted, the examiners were required to make online judgments about what was appropriate for each participant during each session and make adjustments as needed. Because there were two different clinicians administering the intervention, it was likely that they demonstrated differences in the way they implemented the intervention procedures. For instance, one clinician consistently elicited more emotion-based words per session from each participant. However, she also frequently underestimated the time allotted for the intervention sessions and some exceeded twenty minutes. The other clinician did not elicit as many emotion-based words per session but he consistently started and stopped the intervention sessions on time. These factors may have accounted for slight differences in performance from session to session. Future research should consider a more scripted intervention protocol or use a single clinician to administer every intervention section.

The baseline and follow-up sessions were scripted in a way that was designed to elicit three productions each of the emotions *happy, sad, angry,* and *scared*. Because *surprise* and *disgust* were not specifically elicited, any productions made by the participants during baseline or follow-up sessions that belonged to either of these two categories were automatically considered inaccurate productions. In addition, this meant that no baseline or follow-up data were available for the *surprise* and *disgust* categories. As a result, conclusions about changes in accuracy for *surprise* and *disgust* productions could only be made by looking at the 20 intervention sessions rather than pretreatment and posttreatment data. Future studies should

consider administering baseline and follow-up measures that assess all emotional categories equally both prior to and following intervention.

Examining valence agreement turned out to be an inherently biased measure. There are only six basic emotions that are universally recognized. Of those emotions, only one (*happiness*) is always positive while four (*sadness, anger, fear,* and *disgust*) are always negative. *Surprise* is subjective and can be considered positive or negative depending on the context in which it is used. Most positive emotions can be grouped under the *happiness* category (e.g., *glad, excited, joyful, giddy*) while negative emotions come in a wider variety. Therefore, due to the nature of this study, valence errors were highly more likely to occur on positive emotion words because the only other basic emotional category of the same valence as *happiness* was *surprise* (and even then, only sometimes). Future studies of valence agreement should focus on more general emotions rather than the basic six in order to allow for a greater variety of positive emotion words.

An additional limitation of the current study is that it did not link improvements in emotion word knowledge to changes in children's social competence. These measures were taken in the more general study, however. The link between social and emotional competence will be examined in future work, and these analyses will provide additional information regarding the efficacy of the intervention studied.

Finally, it is important to recognize the variable results for each of the children studied. This pattern is reflective of most interventions for children with LI. Because of the heterogeneous nature of the deficits seen in children with LI, it would be unrealistic to assume that one intervention method could affect each child with LI in the same way. One must take into consideration that LI is often seen in conjunction with other deficits. Although each of the

participants in this study earned UNIT (Bracken & MaCallum, 2003) scores that ruled out intellectual disability, other conditions were observed (e.g., dysphagia, dysarthria, motor difficulties, developmental delay) which likely contributed to overall language ability. These various disabilities are common in children with LI and are part of the reason why these children demonstrate such a heterogeneous range of abilities and deficits. As with any intervention designed to treat children with LI, areas of strength and weakness need to be considered on an individual basis when planning treatment goals and intervention procedures.

Directions for Future Research

As noted previously, relatively few social communication intervention studies have been conducted with elementary school-aged children with LI (Gerber et al., 2012). The present study produced variable but promising results. In order to more accurately investigate this intervention, however, future studies should consider larger groups of children. By examining greater numbers of children with LI, researchers may learn how social communication intervention affects children presenting with many different strengths and weaknesses but who have all been identified with LI. In addition, future studies should consider including a randomly selected control group that would undergo traditional treatment. A randomized clinical trial would be an additional step in establishing the efficacy of this intervention.

A specific component of the intervention that could be studied was the responsiveness of the children with LI to specific elicitation tasks. During this social communication intervention, the examiners made many attempts to elicit specific emotion words. Some elicitation attempts were successful but many were not. Future researchers may want to examine which methods were most effective in eliciting appropriate responses and which methods were more likely to

result in tangential or inappropriate responses. This information may be helpful in creating a more structured intervention design.

This study only looked at how well children with LI were able to recognize and verbally identify different emotional reactions; indirect methods were used to assess emotional competence. Even more telling than this study but far more difficult to perform would be a study that could directly measure the emotions of children with LI. Particular physiological responses are associated with different feelings and emotions; physiological tests exist that measure behaviors such as blood pressure, respiratory rate, heart rate, or galvanic skin response. Testing these behaviors in children with LI would be more difficult (if not impossible), but the results could offer valuable and quantifiable information about how LI affects emotional competence.

Conclusions

Although there was variability between participants, this social communication intervention was shown to be a promising tool in teaching children with LI to more accurately use certain emotion-based words, namely *happiness, sadness, anger, fear,* and *surprise.* Valence errors were more likely to occur when positive emotions were misidentified than when negative emotions were misidentified. There were not enough participants in this study to conclude that this particular intervention was effective in producing successful results consistently but these findings suggested that this intervention may be effective in teaching children to produce emotion words more accurately. Future research replicating these results as well as studies involving control groups and larger populations are needed before definitive conclusions can be made regarding the effectiveness of the intervention studied on improving the production of emotion words in school-aged children with LI.

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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

Purpose of the study

This study described two case studies of children identified with pragmatic language impairment (PLI). The authors described the two children diagnosed with semantic-pragmatic language disorder (SPLD) and discussed the relevance of the SPLD label despite the children's varied impairments. This paper discussed the treatments that were used, their clinical outcomes, and possible shortcomings in current methodologies used to treat children with SPLD.

Method

Participants. Participant A was a 10;03 male with normal hearing who presented with behavioral and attention problems in addition to severe receptive language delay. He attended a mainstream school and received treatment from a specialist speech and language therapy team. Participant A had previously received treatment for comprehension and concept development; this study focused on his problems with interactional communication skills at the time of the study. Participant A attended therapy three times a week for 10 weeks; his goals included giving adequate information, being concise, sequencing events in a narrative, using prosody to convey meaning, and interpreting complex auxiliary and modal verbs. Therapy was based on a combined developmental approach and a metapragmatic approach.

Participant B was a 7;03 male referred to speech and language therapy while undergoing psychiatric assessment in an in-patient child psychiatric unit. He had typical hearing, receptive vocabulary, and IQ but demonstrated delayed comprehension of grammar, dysfluencies, and difficulty with word retrieval and topic maintenance. Participant B attended weekly therapy sessions with additional practice and support at home; his goals included strengthening phonological awareness skills and phonological memory skills, over-rehearsing memory and phonological awareness tasks, retrieving lists of alliterative words and rhymes, and sequencing ideas in narratives and conversation. Treatment goals were chosen based on the theory that retrieval deficits are founded on phonological memory deficits and that by improving phonological awareness and memory, phonological storage becomes more accessible.

Analysis and results

Participant A was recorded for one hundred conversational turns. Each interaction was analyzed and coded for social appropriateness regarding informativeness, relevance, completeness, and length. From assessment 1 to assessment 2, participant A demonstrated a decrease in pragmatic mismatches; the proportion of summed mismatch codes (e.g., inadequate or problematic responses) dropped from 15.79 to 7.7% after therapy.

Participant B was initially assessed using a narrative assessment and standardized assessments of memory, IQ, fluency, and word finding. From assessment 1 to assessment 2,

participant B demonstrated a highly significant increase in word-finding skills to within the typical range. Narrative skills improved, and the total number of prepositions and cohesive devices increased. Modest improvements in use of conjunctions and grammatical structure were observed. Comprehension improved and the participant, though still struggling with dysfluency, some word-finding, and verbal concept development, was "much more confident and outgoing and was clearly more willing to converse with adults and other children" (pp. 300).

Conclusions

The label SPLD has been assigned to children presenting with very contrasting impairments. This study suggested that the diagnostic classification SPLD may not be warranted because two different intervention methods were needed to treat two children who both had a diagnosis of SPLD. Instead, a term such as PLI might be used to describe a group of children without significant additional formal language disorder who will require a different approach than that typically used with specific language impairment. The results of these case studies indicated that it was possible to observe and measure the pragmatic abilities of children with language impairment before and after treatment if the assessment methods and goals were appropriate and sensitive to each individual. These case studies showed that measures of pragmatic ability, conversation analysis, and narrative may serve as measures of improvement following intervention for school-age children with PLI.

Relevance to current work

There are many labels that attempt to define different impairments and disorders but often these categories overlap. Further studies on the pragmatic abilities of school-age children with language impairment are needed so that definitions such as PLI and SPLD may be more clearly defined. There are few published studies that have focused on pragmatic intervention, possibly because of the variety of abilities and deficits observed with a PLI or SPLD diagnosis. This study, along with the few others that relate to pragmatic intervention, indicates that appropriately sensitive pragmatic assessments and treatment procedures can be effective in improving social communication skills.

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.

Purpose of the work

The purpose of this chapter was to review the diagnostic issues associated with pragmatics and language disorders and to outline the state of pragmatic intervention that was current at the time the chapter was written.

Summary

Pragmatic language impairment (PLI) has been described as being a condition that is intermediate to autism and language disorder in that social deficits are not severe enough to be considered autism, and the semantic and word-finding difficulties are similar to those found in

SLI. Although several individualized pragmatic interventions have been created by researchers, there are currently no valid frameworks for pragmatic intervention that are widely used. Similarly, studies of intervention targeting social skills and social communication deficits have been severely limited by lack of control conditions and small sample sizes. However, the studies that do exist seem to have suggested that the communication skills of children with PLI do in fact benefit from speech and language services and, as a result, specific improvements in pragmatic skills might be possible.

The authors described a revised framework of social communication intervention called the Social Communication Intervention Project (SCIP). SCIP consisted of an assessment protocol, a procedure for individualizing assessment and intervention, planning forms, and a large resource of therapeutic activities addressing multiple areas of social communication. The aims of SCIP were to 1) develop awareness, understanding, observation, and insight into the social cues and relationships, 2) directly target the formal aspects of pragmatics by explicitly stating and practicing rules and conventions, and 3) improve language processing by focusing on high-level features of language organization.

Conclusions

This article illustrated the fact that although PLI is fairly common among school-aged children, there is a real need for valid intervention procedures to address their deficits. In addition, the heterogeneous nature and symptoms of PLI have made it difficult to use the same intervention with different children identified with PLI and still expect similar results. SCIP was one possible suggestion for addressing the wide variety of difficulties that have been observed in children with PLI.

Relevance to the current work

The authors of this study explained that in our current state, there is a desperate need for more valid frameworks for intervention targeting social communication difficulties. This is a difficult task, however, due to the great variety of social communication deficits observed in children with LI, autism, PLI, and other disorders. My thesis examined the efficacy of one of these social communication interventions. Although the intervention administered in my thesis did not attempt to address all social communication deficits, it did address emotional competence, which has been identified as a critical component of 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

Purpose of the study

This research report was not an efficacy study but rather an attempt to discover whether or not there is a signal that targeted speech and language therapy brings about change in language and pragmatic skills in children with pragmatic language impairment (PLI). The study aimed to find the magnitude of the signal and how it could best be detected. During their

research, the authors studied intervention to gain better insights into the condition of PLI and what future research might be useful to the field.

Method

Participants. Six children diagnosed with PLI but without an autism diagnosis were recruited to the study from mainstream school speech and language therapy programs; the participants were aged between 6;0 and 9;11. Each subject had not received therapy specifically targeting pragmatic skills within 3 months of the study. None of the children presented with severe unintelligibility, severe expressive language delay, or hearing, visual or physical impairments.

Assessment Instruments. The assessment instruments used included the following: *Autism Diagnostic Interview – Revised* (ADI-R; Lord et al., 1994); *Children's Communication Checklist* (Research version) (CCC; Bishop, 1998); Conversation Assessment Task (CAT), *Assessment of Comprehension and Expression* (ACE 6-11; Adams et al., 2001) narrative, naming, and inferential comprehension subtests; *Clinical Evaluations of Language Fundamentals* (CELF; Semel et al., 2000) sentence recall and formulating sentences subtests; *Test for Reception of Grammar* (TROG; Bishop, 1983); *British Picture Vocabulary Scale* (BPVS; Dunn et al., 1997). Bishop's Assessment of Language Impaired Children (ALICC) was administered in order to measure change from pre- to post-treatment.

Procedures. The design of this study was based on a series single case model with three children participating concurrently during the first school term, and three children participating concurrently during the second school term. Each child attended one-on-one speech therapy sessions three times a week for 8 weeks. Each session was an hour long. The participants received individualized therapy based on the results of their pre-therapy assessments. Intervention reflected the current practices in pragmatics at the time (e.g., "building on strengths in communication through exercises and games in interpersonal communication and by developing strategies to promote more effective communication with others in the child's environment" (p. 49)). Parents and teachers of the subjects were given specific advice and training in environmental strategies that they could enlist to support the social communication needs of the children. Therapy targets were chosen in consultation with the participants' parents and teachers using the intervention protocol.

Analysis and Results

Prior to intervention, each child was assessed using the CAT, ACE 6-11 (narrative, naming and inferential comprehension subtests), CELF (sentence recall and formulating sentences subtests), TROG, and BBVT. Following intervention, the CAT was administered at 2-weekly intervals for 8 weeks. ACE 6-11 and CELF subtests were again administered so progress could be measured. Each CAT administration was analyzed for discourse participation, conversation dominance, loquacity, assertiveness, verbosity, and verbal responsiveness. Blind judges determined each conversational turn to be adequate, inadequate, pragmatically inappropriate, or no response. Although results were highly variable, all children showed change in communication behavior on some conversation measures. The study indicated a signal for change in pragmatics and/or language behavior in all children.

Conclusions

The authors pointed out that because this was not an efficacy study, "limitations of design and subject numbers mean that the only valid evidence-based practice conclusion that can be reaches is that there is a signal of treatment change for PLI" (p. 60). The study further showed that the intervention method employed with these particular participants had the potential to show changes in language processing and pragmatic skills. The primary outcome measure, ALICC, proved to have mixed effectiveness in measuring change. Indices calculated from frequent conversation behaviors (e.g., conversational dominance, loquacity) were useful in demonstrating clinically significant changes; however, indices calculated from infrequent conversational behaviors (e.g., response and pragmatic problems) were of little use in showing changes and may in fact have been unsuitable for the task. Following treatment, teachers and parents reported that the participants' gains were evident in their conversational skills, social flexibility, and attention in the classroom, proving that the intervention effects were generalizing. The authors expressed the importance of combining direct intervention with environmental adjustments and adaptations in the home and at school in order for students with PLI to obtain maximum benefits.

Relevance to current work

This study showed that children with PLI have a lot in common with children who have specific language impairment (SLI) and that treatment methods used for PLI are also highly effective with children who have SLI. My thesis measured the effects of a particular pragmatic intervention method on children with SLI. The data from this study led me to believe that pragmatic intervention might help the students who participated in my thesis research to generalize what they learned in therapy to their everyday social interactions.

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

Purpose of the study

This study aimed to describe the structure and fidelity of a complex speech and language intervention (the Social Communication Intervention Project; SCIP) within a randomized controlled trial. This experimental intervention was designed for school-aged children in the UK who presented with complex language, pragmatic, and social communication needs.

Method

Participants. Fifty-seven children in the UK presenting with complex pragmatic language impairment were recruited and aged between 5;11 and 10;8 years old. All children were attending mainstream schools and receiving special education services at the time of the study. All participants earned non-verbal reasoning scores that were within normal limits and met the criteria for communication impairment on the *Children's Communication Checklist-2* (CCC-2).

Seventy-five percent of the participants presented with autistic features according to the Social Communication Questionnaire (SCQ; Rutter et al., 2003).

Individualization. The SCIP procedures were individually designed for each of the 57 participants based on the results of formal and informal assessments. Standardized assessments were used to measure expressive and receptive language, narrative comprehension and recall, naming and non-literal comprehension. Nonstandardized assessments included the CCC-2, a parent and teacher report of the child's social skills and areas of concern, a naturalistic, semi-structured language sample demonstrating the child's pragmatic abilities, and narratives designed to examine a child's understanding of non-literal language, and observations of each child engaging in peer interaction.

Procedures. Each participant received three, one hour therapy sessions per week with a trained speech-language pathologist for a total of 20 sessions. Therapy content was divided into three areas: language processing (LP) for remediating impairments in semantics and high-level language skills; pragmatics for addressing pragmatic difficulties using principally metapragmatic therapy; and social understanding and social interaction for addressing limitations of social interaction and social cue interpretation. Each of the three areas contained five components, each having a number of therapy targets linked to a set of intervention activities. The speech-language pathologist picked activities for each individual based on the areas of concern that were determined by standardized and nonstandardized assessment measures.

Analysis and Results

The fidelity of the intervention procedures was also determined. For six participants, an audit was completed to compare the activities that were planned for each session to the activities that were delivered. Quality of therapy judgments was determined using a simple scoring system of appropriate quality on five criteria: evidence of correct delivery of intervention; evidence of managing structure of the session (pace and responsiveness of the child); evidence of differentiating the activity to meet each child's needs; interpersonal effectiveness including feedback; and use of the child's existing knowledge and experiences to enhance the impact of intervention. Additional training and support were given if any of the administrators showed difficulty in any of the five critical areas.

Following the delivery of treatment, the mean number of intervention sessions per child was 19. Out of 586 possible activities planned, 499 (85%) were actually carried out in intervention. In examining quality of therapy delivery, all five critical areas were met for five out of six children; for one child the therapist did not meet criteria for "evidence of differentiating the activity to meet the child's needs." Results of the school-therapy alliance checklist showed that the intervention utilized high therapist-education staff and therapist-parent liasons. Parents were almost always involved in helping to plan the intervention.

Conclusions

The authors were successful in developing and implementing a manual of complex speech-language intervention. The SCIP intervention manual provided detailed intervention procedures that enabled reliable treatment delivery and individualization for each participant. The manual was detailed enough that any professionals trained in the SCIP procedures would be able to meaningfully implement the activities outlined for each individual. The fact that 85% of

the planned activities were used and each child received intervention addressing at least one of the three main SCIP aspects suggested that it was necessary for the manual to go into as much detail as it did. Of all intervention targets, basic conversation, narrative and metapragmatic skills and facilitation of the understanding of social cues and emotion vocabulary were the most frequently used.

Relevance to current work

The authors of this article give a detailed account of how they were able to successfully create and implement a complex language intervention for children presenting with pragmatic language difficulties. Although the actual intervention activities that were used were not described in this article, the authors' research confirmed the fidelity of the intervention in targeting social communication deficits within a heterogeneous group of children with individual needs. My thesis examined how effective a novel pragmatic language intervention was in improving the emotional competence of three children presenting with LI; this article suggested that there is a way to successfully address the individual needs of many children presenting with social communication difficulties using the same program.

Bartak, L., Rutter, M., & Cox, A. (1975). Comparative study of infantile autism and specific developmental receptive language disorder 1: Children. *British Journal of Psychiatry, 126*, 127-145.

Purpose of the study

The authors of this article examined a group of children presenting with receptive language delay and within that group, compared children presenting with infantile autism to those not presenting with infantile autism. The purpose of this study was to define which cognitive abilities needed to be present or not present in order for the development of infantile autism to be observed.

Method

Participants. Forty-seven boys between the ages of 4;6 and 9;11 years old who had a nonverbal IQ of at least 70 and who presented with a disorder of language comprehension from birth until the time of the study were included in the research. Of the 47 children presenting with severe developmental receptive language disorder, 19 were classified as having infantile autism and were placed in the "autism" group. Members of this group demonstrated profound and general failure to develop social relationships and ritualistic or compulsive phenomena. Twenty-three children presented with uncomplicated developmental language disorder and were placed in the "dysphasic" group. Finally, 5 children presenting with some autistic features but whose disorders were considered atypical were placed in the "mixed" group.

Procedures. Nonverbal intelligence was tested using the WISC Performance Scale (Wechsler, 1949) or the Merrill-Palmer Scale of Mental Tests (Stutsman, 1948). The Coloured Progressive Matrices (Raven, 1965) and the Columbia Mental Maturity Scale (Burgemeister, Blum, & Lorge, 1954) were administered to examine possible patterns of nonverbal ability. When possible, the WISC Verbal Scale was used to provide an estimate of verbal intelligence, supplemented by the Peabody Picture Vocabulary Test (Dunn, 1959).   Each child's

understanding and expression of spoken language ability was assessed with the Reynell Developmental Language Scales (Reynell, 1969) and a recorded sample of spontaneous speech. Reading assessments were included to measure educational level and to supplement the language assessment measures. A checklist of social and autistic behaviors was completed by the clinician immediately following a standardized play period between the child and the tester. Parental interviews provided case histories and reports of each child's individual patterns of communication.

Analysis and Results

Assessment measures indicated that "dysphasic" children had a higher rate of hearing impairment. Although autism was more common in boys, "dysphasia" was found in approximately equal amounts of boys and girls. Both groups were of average intelligence. Receptive language disability was observed in both groups, but to a lesser degree in the dysphasic group. Children in the group with autism demonstrated more deviant language development than children in the dysphasic group and their language disabilities were more severe in that they involved several different modalities. Children with autism demonstrated poorer usage of social language. Between the two groups, few nonlinguistic differences were observed.

Conclusions

The authors suggested that although it was not necessary for a child with language disability to present with infantile autism, it was likely necessary for a child presenting with autism to present with language disability. The fact that half of the children with severe developmental disorders of language comprehension were *not* autistic was evidence that language disability was not a sufficient cause of autism.

Relevance to the current work

This study indicated that many symptoms of language disability and autism can overlap. In particular, every child in this study (both autistic and not autistic) demonstrated severe developmental receptive language delay. The large-scale project that my thesis was a part of examined subjects presenting with both autism and LI. The results of this study served as a rationale for why it was acceptable to place children with two different diagnoses in the same program for social communication intervention.

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

Purpose of the study

Topics play a vital role in regulating or sequencing conversation. In addition, topics are used to develop interpersonal relationships and allow for the expression of needs, feelings, and ideas. Topic maintenance requires active listening and adequate language comprehension. The

purpose of this study was to examine the effects of treatment on the topic performance of a school-age child with language disorder.

Method

Participants. The subject of this study was a 5-year-old male child enrolled in a regular kindergarten classroom. The child's medical history and hearing screening results were unremarkable. An informal cognitive assessment indicated that the subject was functioning in the early preoperations stage for drawing, the early to middle preoperations stage for seriation and dichotomies, and the middle to late preoperations stage for free sorting. Processing Word and Sentence Structure and Oral Directions subtests of the CELF indicated scores corresponding to a first and second grade level. In terms of conversation, most of the child's topic initiations were about the here-and-now.

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

Procedures. A multiple baseline design across behaviors was implemented. Two 30-minute sessions were held each week for approximately six months. Based on the results of the pragmatic assessment, two treatment goals were chosen: increase the frequency of memory-related topic initiations, and increase the frequency of future-related topic initiations. General teaching procedures involved the use of instruction, modeling and feedback regarding performance within a communicative context. The first five minutes of each session were audiotaped in order to probe measurements involving the frequency of here-and-now, memory-related, and future-related topic initiations.

Analysis and Results

Data were independently collected during the five minute probe sessions by different investigators. The presence or absence of toys during each session was noted. During the pretreatment phase, an increasing rate of initiation for here-and-now topics was reported. Memory-and future-related topics were only initiated when toys were absent. During Treatment 1, the child exhibited an increase in the frequency of memory-related topics ($M = 1.52$, $SD = 1.47$). The effectiveness of Treatment 1 was difficult to determine due to the fact that the presence of toys in some sessions and absence of toys in others was a confounding variable. During Treatment 2, the child demonstrated a marked decrease in the rate of memory-related topics, and a marked increase in the rate of future-related topics. Because no toys were used during sessions throughout this entire phase, it could be determined that Treatment 2 was in fact effective in achieving the desired target behavior. For both treatment procedures, the rate of here-and-now topics remained stable.

Conclusions

Following treatment, the child demonstrated an increase in the variety of topics initiated. Posttreatment MLU indicated a clinically significant increase in his general level of syntactic development and a 14 grammatical morpheme analysis indicated the mastery of additional morphemes. This study provided treatment from a pragmatic framework as an alternative to the structure of traditional language programming, which has focused on syntactic and semantic drilling. The results of this study provided evidence that changes in the overall language performance of a child can be achieved by focusing on communication in a functional manner. The authors strongly suggested that for future research, the use of toys and other materials in the analysis of the pragmatic skills of school-age children needed to be considered. In addition, the authors stated that an examination of the effect of toy or non-toy conditions on the topics initiated by school-age children was warranted.

Relevance to current work

This study was one of relatively few published articles regarding the effects of pragmatic intervention on school-age children. There has been a need for further evidence that such pragmatic intervention is an effective intervention method for school-age children with language impairment. This study provided evidence supporting one pragmatic intervention targeting social communication skills, however it pointed out areas of question regarding effective treatment and assessment strategies. Further research regarding pragmatic intervention is necessary in order to create more effective methods for treating children with language impairment.

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

Purpose of the study

The aim of this study was to examine the verbal and nonverbal responses of children presenting with pragmatic language impairment (PLI) in a conversational setting. The authors compared these children to both same-age peers presenting with typical SLI and a younger group of typically developing children. The hypothesis was that the group with PLI would respond in conversation more similarly to the younger, typically developing children than age-matched peers.

Method

Participants. Nine children between the ages of 6 and 8 years old were recruited to the PLI group after earning a score of 12 or above on an experimental checklist of their semantic-pragmatic abilities (filled out by a teacher or therapist who was familiar with the child), a nonverbal IQ of 80 or above, and scores more than 1 *SD* below the mean on at least one test of language ability. A comparison group of 9 children with more typical forms of SLI was formed by children who scored 10 or below on the same checklist, had a nonverbal IQ of 80 or above, and produced a score at least 1 *SD* below the mean on at least one test of language ability. Two control groups of 9 children each were selected at random. One language-age (LA) group was selected based on the fact that their raw scores on the language screening tests were comparable

to the raw scores of the children presenting with SLI. The chronological age (CA) group was selected due to the fact that their ages and nonverbal abilities matched the children in the group with SLI. Children in both control groups earned nonverbal IQ scores of 80 or above and scored within 1 *SD* of the mean on at least one test of language ability.

Procedures. Baseline testing included standardized measures of nonverbal ability, receptive and expressive language. Conversational samples were collected of each participant interacting with two unfamiliar women. Photographs were used to engage the child in conversation and encourage discussion of personal experiences.

Analysis and Results

Each session was video recorded and later transcribed and coded. Coding distinctions were made between adult utterances soliciting information and those soliciting acknowledgment. All personally identifying information including group membership was kept from the coders. Child responses to adult utterances were coded as no response, minimal verbal response (e.g., yes, no, don't know), or extended verbal response. Responses that fit into none of the categories were coded as "other" and excluded from the analysis. Each child's response was coded as either an adequate response, inadequate response, or pragmatically inappropriate response based on how well it meshed with the adult utterance.

Analysis indicated that there were response differences between the younger, LA matched controls and the older, CA matched controls. Children at every age used more nonverbal responses when responding to acknowledgment-soliciting utterances than information-soliciting utterances but younger children demonstrated greater usage of nonverbal responses than older children. Children in the group with PLI used an exceptionally low rate of nonverbal responses. The two control groups did not differ significantly in the proportion of "no response" observed in conversation. The group with PLI demonstrated significantly greater rates of "no response." The two groups with LI produced a lower rate of adequate responses than both the CA and LA matched control groups. The groups with LI also produced a significantly higher proportion of pragmatically inappropriate responses than the LA control group.

Conclusions

The results of this analysis suggested that perhaps it was "inadequate" rather than "pragmatically inappropriate" responses that best differentiated between younger and older typically developing children. Young children demonstrated a high response rate, comparable to that of the CA control group and were more likely to provide nonverbal responses. As children aged, the form of the response rather than the likelihood of responding changed. Children with SLI were less responsive than CA controls. Both groups with LI, particularly the group with PLI, used a very low number of nonverbal responses, which was different than the younger, typically developing children who used the highest number of nonverbal responses of all four groups.

Relevance to the current work

The results of this study provided evidence that children with LI have a tendency to offer pragmatically inappropriate or inadequate responses in conversation. These inappropriate

responses have had a negative effect on the conversations that take place between children with LI and those they communicate with. Some limitations to this study were that the sample size was small and only white children were included. Environmental and family background data were not taken into account during the participant selection process or the baseline assessments. Finally, conversational responses were only assessed in semistructured tasks; future studies should observe conversational responsiveness in other settings.

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.

Purpose of the study

The aim of this study was to replicate and refine the findings of earlier studies on vocal processing of children with ASD. Four experiments were performed in order to better interpret the impairments of children with ASD.

Method

Participants. In each of the four experiments, participants included a group of 19 children identified with ASD and a control group of 19 children identified with SLI. In two of the experiments, 19 typically developing children made up an additional control group. The participants in the groups with ASD and SLI were recruited from two nonresidential special schools for children with communication difficulties. The typically developing participants were selected from two classrooms in a mainstream primary school. None of the participants demonstrated sensory, motor, of behavioral difficulties.

Procedures. The authors completed four experiments. Prior to each experiment, the participants underwent a brief training period. Experiment 1 looked at familiar voice-face matching and sound-object matching. For voice-face matching, 24 photographs of familiar school personnel were presented to each child along with 30-sec audio clips of each individual speaking about a control topic. For sound-object matching, 24 photographs of familiar objects were presented along with 30-sec audio clips of the sounds that each object typically produced. The child was asked to select which person or object was associated with each audio clip; if responses were incorrect, correct responses were elicited using prompts.

Experiment 2 looked at familiar voice recognition. Each child with SLI and ASD was presented with 28 audio clips of voices. Some voices belonged to familiar people and some voices belonging to unfamiliar people. The students were tasked with sorting the voices into familiar or unfamiliar categories. Errors were not corrected.

Experiment 3 examined unfamiliar voice discrimination. Participants in this study included the experimental groups with SLI and ASD and a control group of typically developing peers. Each student was presented with 13 sets of 3 audio clips. Each clip contained approximately 30 sec of speech recorded by an unfamiliar person. The participants were asked to identify if the speaker was a man or woman and was then tasked with finding the recording that was made by the same person.

Experiment 4 examined vocal affect naming and vocal-facial affect matching. Twenty-four photographs of a woman conveying different emotions by facial expression were presented to each participant. The child was asked to name how the woman was feeling in each

photograph; any errors were corrected. Audio clips of a woman reading aloud using the same emotions that were conveyed in the photographs were presented to each child. The child was asked to label how the woman sounded (according to her voice) and to select a photograph that matched the voice. All errors were corrected.

Analysis and Results.

In experiment 1, the middle 18 photographs were analyzed for correct/incorrect responses. No significant main effects were found for either group or school but a significant effect of condition was found with sound-object matching being superior to voice-face matching. In the group with SLI, voice-face matching correlated with sound-object matching. The correlation within the group with ASD was significantly smaller.

In experiment 2, the total number of voices that were correctly identified as familiar or unfamiliar showed no main effects or interactions for both schools and groups. The groups with SLI and ASD performed comparably to each other.

In experiment 3, no differences were found between the three groups in ability to identify unfamiliar voices. All three groups scored high enough to conclude that results were not reached by chance. Neither the children with SLI nor the children with ASD demonstrated impaired voice discrimination when compared to typically developing children.

Results from experiment 4 indicated a significant main effect of group and a significant group by condition of interaction. Overall, the children with SLI performed significantly more poorly than both the control group and the group with ASD. The group with ASD performed similarly to the control group on affect naming.

Conclusions

The results of these studies were generally unexpected. Children with ASD were found to be impaired relative to their typically developing peers on affect matching but unfamiliar voice discrimination was unimpaired. Surprisingly, children with SLI performed similarly to the group with ASD on voice-face identity matching and familiar voice recognition and significantly worse than the group with ASD on voice-face affect matching and vocal affect naming. This study also suggested that children with SLI were not impaired when discriminating between unfamiliar voices. Children in the groups with both ASD and SLI demonstrated problems at the level of encoding meaning, not at the level of encoding perception.

Relevance to the current work

The results of these experiments have shed a new light on the extent of difficulties children with SLI have had in interpreting vocal prosody. Since interpreting vocal prosody is an element of emotional intelligence, this study was important to my thesis; it provided evidence that children with LI struggle with emotion perception conveyed by vocal prosody.

Brinton, B., & Fujiki, M. (2005). Social competence in children with language impairment: Making connections. *Seminars in Speech and Language, 26*(3), 151-159.

Purpose of the work

The aim of this work was to describe the various factors that influence the relationship between linguistic and social difficulties and how these factors are interconnected.

Summary

Although there have been some exceptions, most children with language deficits have also demonstrated difficulties with social communication. Some social areas that children with LI have been known to experience difficulties with include being prosocial, initiating interactions, and working and conversing in groups. As a result, these children have often been disliked or excluded by their peers and they have reported feelings of low self-esteem and high levels of victimization. The authors suggested that researchers need to consider the various symptoms seen in children with LI and how these symptoms were interrelated in order to determine which patterns of intervention would be most effective in improving these behaviors.

Researchers have not confirmed if language deficits cause difficulties with social competence or vice versa. As a result, the authors have encouraged us to consider these factors in terms of causal networks. Brinton et al. suggested that language ability and social competence were just two of many main ingredients working together in a single recipe. Other ingredients that worked together to influence social functioning included emotion regulation and emotion understanding. Unfortunately, children with LI have been documented as demonstrating difficulties in both of these areas.

In order to have the greatest impact on these children, intervention needs to focus on targeting the largest areas possible. In many cases it may be necessary to create treatment goals focusing on the enhancement of both language ability and social functioning by focusing on social communication. By targeting a network of interrelated cognitive, language, social, and emotional areas, skills that are necessary for successful communication in real life can improve.

Conclusions

By focusing on targeting a myriad of communication skills in naturalistic contexts, children with LI can eventually improve their communicative functioning. For many children with language difficulties, social communication skills need to be the central focus of intervention. Research has shown that targeting social communication skills can overlap with and enhance other academic or language goals.

Relevance to the current work

This article was important to my thesis in that it demonstrated how intervention targeting social communication skills can generalize to benefits in other linguistic or academic areas. This was taken into account when the design procedures for the social communication intervention used in my study were created. My intervention targeted emotional competence with the hope that improvements in emotion perception and understanding would indirectly result in improved social communication skills.

Brinton, B., & Fujiki, M. (in press). 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.

Purpose of the work

The aim of this chapter was to discuss the social and emotional issues that have been associated with LI and to describe how children identified with LI have fared socially in the long-term.

Summary

Research has shown that children with LI often demonstrate difficulty in a variety of social tasks such as entering ongoing conversations, participating in group decision-making, cooperating in groups, negotiating with peers, and resolving conflicts. The difficulties that children with LI have faced in social situations explain why these children have often been described as withdrawn and perceived as having behavioral problems. Long-term studies of children with LI have shown that social difficulties often intensified rather than disappeared over time; these children reported victimization by their peers, low self-esteem, and few friends. Adolescents with LI have been identified as at high risk for developing socioemotional or psychological problems such as anxiety, depression, and shyness.

Emotional intelligence is necessary to social functioning. Emotional intelligence includes the emotion perception (e.g., identifying emotions in one's self and in others), emotional facilitation of thinking, emotion understanding (e.g., interpreting emotional behavior and making inferences based on emotions), and emotion regulation (e.g., controlling or elevating emotions). Over the past several decades, many researchers have provided evidence that individuals with LI demonstrate difficulties in all four of these areas.

The language deficits experienced by children with LI affect their ability to acquire literacy skills. These children require more exposure to literacy and more explicit instruction than their peers but tend to receive less instruction, often intensifying literacy deficits. Additionally, early schooling frequently embeds literacy instruction within social interactions, an area that children with LI already struggle with. As typically developing children learn to read, the structure of classroom instruction places greater emphasis on learning through literacy, increasing the gap between these children and those with LI. It is no wonder that children with LI frequently show little interest in reading.

Conclusions

The social and emotional difficulties faced by individuals with LI appear to persist and even intensify throughout adolescence and sometimes adulthood. Many of these difficulties may be attributed to the emotional intelligence deficits that children with LI often demonstrate. The inability to identify and understand one's own emotions and the emotions of others impacts one's ability to interpret written texts make appropriate contributions to conversational interactions. It is important to recognize, however, that LI is heterogeneous and every child with LI will present with different abilities and impairments.

Relevance to the current work

This chapter was important in describing how far-reaching the impact of LI can be on the social and emotional functioning of children with LI. Early social communication intervention

(much like the intervention implemented in my thesis) is critical to improving the long-term prognosis of children with LI and their ability to thrive in mainstream society. Future research is needed in order to further describe how social, emotional, and linguistic components interact in children with LI.

Brinton, B., Fujiki, M., & Higbee, L. (1998). Participation in cooperative learning activities by children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 41*, 1193-1206. doi: 1092-4388/98/4105-1193

Purpose of the study

This study examined children identified with SLI while cooperating with peers in a group task. The authors analyzed the verbal and nonverbal collaborations of the target participants with their age-matched peers.

Method

Participants. Fifty-four children between the ages of 5 and 12 were recruited to the study. Eighteen triads consisting of 1 target child and 2 partners were assigned. The 18 target children included 6 children with SLI, 6 children chronologically matched to the SLI children (CA), and 6 children matched to the SLI children for language scores (LS). Each target group consisted of 3 boys and 3 girls. Children in the LS group were identified by comparing language-age equivalent scores within 6 months on the CELF-R to the children with SLI. Typically developing partners were matched for grade and gender but were not typically social with the target children.

Procedures. The children in each triad completed 40-50 minutes worth of activities before they were given materials for building a periscope out of a shoe box and mirrors. The administering clinician was blocked from the children's view and could only provide minimal suggestions if asked for help. No time limit was given and each session was video recorded using two camcorders.

Analysis and Results

Each of the samples was transcribed and analyzed for verbal and nonverbal collaborative involvement of each child in the triad. Verbal collaboration was analyzed in 15-sec intervals. If 2 or more children spoke about the same topic in a 15-sec interval, those children were scored as being collaborative during that interval. Off-topic utterances or silence were not scored as collaborative. The number of collaborative intervals was converted into a percentage out of total intervals in the sample. Nonverbal behaviors (such as coloring, cutting, preparing mirrors, etc.) were scored similarly; they were considered collaborative if they contributed to the periscope construction in conjunction with another child's work.

In triads containing a child with SLI, differences were found between subgroups in overall collaboration; children with SLI participated in collaborative activities significantly less than partner 1 in their subgroups. Similar trends were found in the LS and CA triads. Inferential analyses did not indicate a significant difference between subgroups for verbal collaboration in any triads. Differences between subgroups were found for nonverbal collaboration in the triads

containing a child with SLI; children with SLI were less involved in building the periscope than either of their partners.

Conclusions

The design of this study provided a reasonable context within which to examine how 6 children with SLI would behave in a cooperative learning group when compared to their CA and LS peers. Collaboration remained fairly balanced between members of the CA and LS triads. Collaboration within the SLI triads was highly variable; some target children contributed nonverbally but not verbally and vice versa while others did not contribute either way. Overall, children with SLI were not as verbally collaborative as their partners and actually retreated from the construction task.

Relevance to the current work

This study illustrated how children with LI tend to contribute less to cooperative group tasks than their peers both verbally and nonverbally.

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. doi: 1092-4388/97/4005-1011

Purpose of the study

This study examined children with SLI and their ability to access and participate in ongoing dyadic conversations. Once access to the conversation was granted, the authors examined the triadic interactions for verbal and nonverbal collaboration.

Method

Participants. Fifty-four children between the ages of 5 and 12 were recruited to the study. Eighteen triads consisting of 1 target child and 2 partners were assigned. The 18 target children included 6 children with SLI, 6 children chronologically age-matched to the children with SLI (CA), and 6 children matched to the children with SLI for language scores (LS). Each target group consisted of 3 boys and 3 girls. Children in the group with SLI met the following criteria: between 8 and 12 years old, IQ above 85, normal hearing, standard score at least 1 *SD* below the mean on the CELF-R (Semel, Wiig, & Secord, 1987), and enrolled in speech and language services for at least 2 years before the commencement of the study. Children in the CA and LS groups did not demonstrate any academic, behavioral, communication or hearing issues according to school records and teacher reports. Typically developing partners were matched for grade and gender but attended different classes than the target children.

Procedures. Two typically developing children were introduced to each other and encouraged to interact and play with several toys before that target child was brought into the same room. The clinician introduced the target child to the two partner children and left the target child to access the conversation. After approximately 20 minutes, the clinician ended the

interaction. The clinician was allowed to provide minimal responses if approached with questions during the sampling.

Analysis and Results

Each of the samples was recorded by two camcorders and transcribed from the point where the target child was introduced to the target children. The samples were analyzed for the number of utterances produced by each child, for who talked to whom during the interaction and for how often each partner was spoken to. It was determined that the subject had gained access to the conversation once the target took a verbal or nonverbal turn that was accepted by one or both partners. Target bids that resulted in successful access included contingent comments, facilitating comments or actions regarding the extension of the play the subject initiated, or compliant responses to requests for information and action. Once access was granted, each sample was analyzed in 15-second intervals for the following target child behaviors: hovering, sitting down with the triad, individual play at or away from the table, collaborative play, or other.

Of the 18 target children, 16 successfully accessed the conversation; the only two children to not access the interaction belonged to the group with SLI. In addition, one child with SLI who did gain access only remained close to his partners for about two minutes and never sat at the table with them. Although the average time required to access the interaction was not significantly different between groups, 9 of the 12 CA and LS targets successfully accessed the conversation in less than 3 minutes; none of the SLI targets accessed this quickly. Average time until access for targets with SLI was 3 minutes, 44 seconds. Participants with SLI always produced the fewest number of utterances in their triad. All three triad members produced more utterances after access than before in CA and LS triads.

Conclusions

The results of this study indicated that children with SLI had difficulty accessing ongoing interactions and that once access was granted (if it was granted), these children do not contribute as much to the interactions as their peers. Analysis of the number of bids to enter the conversation that were directed at the target children revealed that success or failure in accessing interaction did not depend heavily on the bids that were offered to the children by their partners.

Relevance to the current work

This study illustrated the difficulties that children with SLI often experience when interacting with others in conversation. My thesis relied on the assumption that children with SLI struggle with social communication; this study provided evidence that such difficulties exist.

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)

Purpose of the study

In this study, the authors examined a group of children with specific language impairment (SLI) and their typically performing peers for the purpose of studying their ability to judge when it was appropriate to dissemble (hide) an emotion according to social display rules.

Method

Participants. The participants in this study included 19 children with SLI and 19 children with typically developing language skills. All participants were attending mainstream elementary schools, spoke English as a first and primary language, and passed a pure-tone hearing screening. Participants with SLI included 11 girls and 8 boys between the ages of 7;9 and 10;10 ($M = 9;1$; $SD = 12$ months). These participants had a primary diagnosis of SLI and were currently receiving speech and language services through the school. In addition, several of these students received resource services. Participants with SLI each earned a score that was at least 1 SD below the mean on the *Comprehensive Assessment of Spoken Language* (CASL; Carrow-Woolfolk, 1999) or the *Test of Language Development—Primary* (3rd ed.; Newcomer & Hammil, 1997). Participants with typically developing language skills included 11 girls and 8 boys between the ages of 7;9 and 10;10 ($M = 9;1$; $SD = 13$ months). These children all scored within or above 1 SD of the mean standard score on the CASL. Participants in both groups were given the *Universal Nonverbal Intelligence Test* (UNIT; Bracken & McCallum, 2003) and received a standard score above 80 (typical participants scored above 85).

Procedures. In order to elicit the emotions *of happiness, sadness, fear, anger*, and *disgust,* the authors created 10 hypothetical social situations. Each situation was controlled for linguistic complexity to ensure that participants with SLI understood the task. In addition, each story was accompanied by pictures that showed the characters and main point of the story. Once each situation was presented, the participants answered questions assessing their comprehension of the story, the intended emotion, the need for dissemblance, and their grasp of display rules. The comprehension question targeted the main aspect of the story and was critical in proving that each participant understood the situation. The emotion question asked the participant to judge the main character's (Chris) emotional reaction to the situation. The dissemblance question helped indicate if the child believed it was necessary for Chris to dissemble his emotional reaction. The display rule question was asked in order to determine whether or not the participants believed their parents thought Chris should dissemble his/her expression of emotion.

Analysis and Results

Each of the four types of questions was individually scored. The comprehension question was scored with a 1 if correct and a 0 if incorrect. The emotion question was scored with a 1 if the participant selected the intended emotion for each situation or an emotion of the same valence. Responses of a different valence than the intended emotion were scored as a 2, and responses of "I don't know" were scored as 0. For the dissemblance and display rule questions, responses were divided in to the following 5 groups: dissemblance of emotion by using socially acceptable display rules; dissemblance or address of emotions by modifying the conflict in the situation, either behaviorally or verbally; expression of the emotional reaction; inappropriate or null responses to the questions; inappropriate or generically used responses to all the conflicts (e.g., "I'm sorry"). Responses falling within the first two categories were considered

dissemblance responses and were scored as 1; responses falling within the last three categories were considered nondissemblance responses and were scored as 0.

Following coding, descriptive analyses were performed using random effects logit models in order to test for differences in the frequencies with which children with SLI and typically developing children answered questions with dissembled emotions. Participants in both groups answered comprehension questions correctly for all 10 hypothetical situations. In response to the dissemblance question, a significant main effect was found for language group and the emotion factor approached significance. No significant interactions were found. In response to the display rule question, a significant main effect was found for the emotion factor and the gender factor approached significance. Again, no significant interactions were found.

Conclusions

The authors initially hypothesized that children in both groups would respond correctly to comprehension questions about each hypothetical situation; this hypothesis was proven to be correct. Children with SLI and their typically developing peers both performed very similarly in inferring the emotional reactions of the characters in each situation. The authors were also correct in their initial assumption that dissemblance would be difficult for children in both groups. The study indicated that as a group, typically developing children responded significantly more frequently that Chris should dissemble his/her emotional reaction than did the children with SLI. An interesting observation was that children in both groups indicated that Chris's parents would want him to dissemble his emotional reaction much more frequently than they indicated Christ should; the two groups did not differ significantly in their responses to this question. The authors pointed out that their data suggest that at least some children with SLI demonstrate vulnerability in emotional competence.

Relevance to the current work

Much like this study, my thesis examined the emotional competence of children with LI. The authors of this study demonstrated that children with SLI have some problems with emotion recognition and expression; my thesis focused on analyzing how well a particular intervention worked in helping them learn to better recognize and express those emotions in social situations.

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

Purpose of the study

The purpose of this study was to examine baseline and post-treatment triadic peer conversations for overall sociability and use of emotion-based words in children identified with LI and ASD.

Method

Participants. This study included six children identified as having social communication problems. Three boys and one girl (ages 5;7 to 6;10) were diagnosed with LI and two boys (ages

5;1 to 5;3) were diagnosed with ASD. All six participants were recruited to the study by their school principal and speech-language pathologist. All were receiving speech and language services through the school. Each student earned an average IQ and a standard score at least 1 *SD* below the mean on a standardized test of receptive and expressive language. All participants passed a hearing screening performed by the district audiologist or school speech-language pathologist. During the triadic peer conversations, each child with LI or ASD was grouped with two age- and gender-matched peers who were typically developing.

Procedures. The social communication intervention that was administered to each of the six children identified with either LI or ASD specifically targeted emotional competence. Mercer Mayer's *A Boy, A Dog, and A Frog* (1967) wordless picture-book series was used to illustrate and highlight the emotions of *happy, sad, angry, scared,* and *surprised*. Each student received 20, twenty-minute one-on-one sessions with two graduate student clinicians. The clinicians utilized a flexibly structured script designed to emphasize emotion labeling, inferencing, contrasting emotions, and motivations behind character actions. Story exploration, story reenactment using props, session journals, perspectives charts and expansion activities were included in the structure of the intervention.

Baseline and follow-up measures were completed with each of the six participants in order to measure the efficacy of the novel social communication intervention. The milk jug activity provided the basis for this honor's thesis. In the milk jug activity, the participant and two typically developing peers were provided with a milk jug and other art supplies and instructed to create a milk jug animal together. After each session, the clinician asked the children a series of questions about their collaborative creation and overall experience.

Analysis and results

Each of the twelve milk jug activity sessions was transcribed. The author examined if the type and frequency of emotion-based words used by each of the participants increased from pre- to post-treatment testing in order to determine if the intervention was effective at increasing the generalization of the target behavior. The author coded and analyzed each session for the use of emotion-based words and utterance counts. Results indicated that for four of the six participants, one or both measures of emotion-based words or utterance counts improved between pre- and post-treatment testing. However, there was a significant amount of between subject variability and one participant actually decreased in both measures between pre- and post-treatment.

Conclusions

The high variability of these results suggested that LI is heterogeneous. Congruent with other research, the results revealed that for the most part, children with LI and ASD contributed less to peer interactions than their peers did. For most of the participants, socialization increased from pre- to post-treatment, suggesting that the intervention might have been effective in improving at least certain aspects of social communication.

Relevance to current work

This study was a part of the same large-scale project as my thesis was; it involved the same participants and the same baseline, intervention, and follow-up procedures. In my thesis, I

analyzed the production of emotion-words throughout each of the intervention sessions to illustrate day-to-day progress in a way that was similar to the way the author of this study analyzed emotion-words.

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)

Purpose of the study

The purpose of this study was to examine the social and behavioral traits of high school-aged children with SLI using a battery of questionnaires administered to the target individuals and their teachers. The authors specifically examined patterns of victimization, social and behavioral difficulties and relationships between social difficulties and language ability and between social difficulties and nonverbal cognition.

Method

Participants. A sample of 242 children who were enrolled in special language units at the age of 7 were recruited to the study and contacted again in their final primary school year. All of these children had primary speech and language difficulties and most met the traditional criteria for SLI. Each of the participants demonstrated adequate linguistic skills on formal assessments but their clinicians felt they had complex or pragmatic language difficulties. A total of 200 of the original students (150 boys; 50 girls) participated in the follow-up study several years later with an average age of 10;11 (*SD* = 5 months). Although all children originally attended language units, there was wide variability in educational placement at follow-up.

Procedures. Many questionnaires were administered to the target children and their teachers. Social and behavioral functioning was measured using The Rutter Behavioral Questionnaire (Rutter, 1967; completed by teachers to provide information about the child's general emotional and antisocial behavioral difficulties), Peer Competence Subscale: Harter Perceived Competence Scale (Harter & Pike, 1984; completed by teachers as a guide to perceived peer competence), Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; a self-report administered to target children in order to examine a number of more specific behavioral difficulties and overall social-behavioral impairment), and the "My Life In School" Questionnaire (MLIS; Sharp, Arora, Smith, & Whitney, 1994; completed by target students as an indication of friendship and victimization experiences in school). Additional measures were used to assess the target children's communication behaviors, nonverbal IQ, reading ability and comprehension, receptive and expressive language, and articulation.

Analysis and Results

Nonparametric tests were used to analyze the data due to its skewed nature. At 11 years of age, a majority of the children with language difficulties were experiencing social and behavioral problems. Scores on the Rutter Behavioral Questionnaire showed a significant rise from age 7 to age 11. No significant change in scores on the Harter Peer Competence Subscale was observed from age 8 to age 11. Seventeen percent of children were reported by their teachers to be a bully to other children and 27% were perceived by their teachers as being

hyperactive (with only 19% of students viewing themselves as hyperactive). Only 16% of the students perceived as having emotional difficulties by their teachers but 30% self-reported emotional difficulties. Forty percent of students were judged by their teachers as unpopular, having few friends, and less skilled at making friends than their peers. Thirty-two percent of the participants were seen as having peer problems including aggressive behavior and/or withdrawal. The MLIS indicated that 36% of children were at risk for being bullied at school. The CCC pragmatic language score was most closely associated with social and behavior difficulties.

Conclusions

Results of this study surprisingly indicated that conduct difficulties, hyperactivity, and emotional problems were not significantly different from typically developing students. The more internalized social difficulties seemed to be most prevalent. The authors suggested that in some children, aggressive behaviors might have been replaced by withdrawal behaviors; either way, children with SLI experienced poor friendships. About a third of these children were bullied and these numbers were estimated to increase with age. The target children tended to show increases in behavior problems over four years

Relevance to the current work

This study provided a comprehensive look at the long-term difficulties that are sometimes experienced by children with language problems. Since many of these social and emotional problems only increase over time, it is even more important to implement social communication intervention at a young age. My thesis utilized just such a social communication intervention targeting pragmatic language skills.

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.

Purpose of the study

The aim of this study was to explore the access behaviors of children with SLI in comparison to their typically developing peers.

Method

Participants. This experiment involved 38 children (13 subjects and 25 partners). The subjects included 5 children identified with SLI (three boys; two girls) and 8 typically developing children as control subjects (4 matched for chronological age [NL-A]; 4 matched for comparable language skills [NL-L]). All SLI and NL-A subjects were 7 or 8-years-old; NL-L subjects were chronologically younger (3 or 4 years old) but produced sentence lengths of the same mean length of utterance (MLU) as the participants with SLI. All subjects and partners demonstrated typical hearing. The determination of subject or partner for typically developing children was a randomized process. Partners were gender- and age-matched to the subjects in their respective triads. Partners in the NL-L triads were also matched for language skills.

Procedures. Subjects were sorted into triadic conversation groups with 2 partners. The partners were introduced to each other and provided with building blocks to encourage

cooperative play. Once the partners were engaged, a target subject was brought into the room and introduced to the 2 partners. The examiner left the room for 20 minutes and the subject was left to access the ongoing interaction.

Analysis and Results

Verbal and nonverbal language was transcribed orthographically from videotapes of each session. Temporally-defined access episodes were identified as successful or unsuccessful and subject/partner behaviors were scored as being task-related or task-unrelated. Successful access episodes involved subjects taking a turn that was verbally or nonverbally acknowledged by at least one partner. The sequential distribution of nonverbal and verbal behaviors was examined.

All typically developing children and 2 children with SLI successfully accessed the interaction. Three children with SLI were unable to gain access within the 20-minute sample. Six of the subjects who successfully accessed the interactions did so in less than 1 minute; time required to access episodes was unrelated to subject group. All subjects produced more than one task-related behavior prior to accessing the interaction and all but one subject in the NL-L group used both nonverbal and verbal forms. Only four out of 10 subjects who achieved access produced task-unrelated behaviors, and those behaviors were infrequent. Subjects who failed to achieve access did not approach the partners or did very little that was task-related. Instead, they observed the partners interacting.

Conclusions

The only subjects who failed to access ongoing conversations had SLI. Judging by the linguistically and structurally simplistic design of this study, the authors suggested that many children with SLI must not access larger and more complex social interactions in their school and community. In this study, expressive language problems, personality and behavioral disorders did not predict poor outcomes. Better receptive language profiles appeared in the children with SLI who were successful in accessing the interaction, suggesting that good, real-time processing abilities may be important. In addition, the higher the receptive language skills, the quicker the subject was granted access. Even when children with SLI accessed conversations, they seemed to do so differently than their peers.

Relevance to the current work

My thesis assumed that children with LI demonstrate difficulty with social interaction. This study provided evidence that children with SLI approach conversational interactions differently than typically developing children do, affecting their social relationships with other individuals.

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

Purpose of the work

Denham aimed to define emotional competence and described how it was essential in early child development. In addition, she provided cases studies, personal findings, and a

detailed literature review explaining what to expect in the case of delayed emotional competence and how those deficits could be treated during intervention.

Summary

In this book, Denham described the developmental history of children's emotions. She explained that emotional and social competence were inseparably linked and therefore, breakdowns in a child's emotional competence would inevitably lead to breakdowns in social communication. The three main aspects of emotional competence included emotion expression (e.g., using words or gestures to convey feelings, displaying empathy, and dissembling emotion), emotion understanding (e.g., discerning one's own emotions and the emotions of others and comprehending emotional vocabulary), and emotion regulation (e.g., coping with aversive situations and controlling or elevating emotions in particular situations).

Denham conducted a thorough and systematic review of literature on children's emotion understanding and contributed many of her own findings (e.g., evidence on children's understanding of how emotions can change and the developmental sequence of children's understanding of ambivalent or complex emotions). In addition to presenting the results of numerous studies focusing on child language, Denham also described surprising and intriguing findings, mentioned study limitations, and suggested areas in need of further research. Finally, Denham provided evidence supporting the argument that children's emotional development is highly dependent on parental support and mentoring. She provided suggestions for intervention procedures targeting emotional competence in children with language difficulties and pointed out various reasons why early intervention was necessary for children demonstrating deficits in any area of emotional competence.

Conclusions

Denham broke emotional competence down into three main areas: emotion expression, emotion understanding, and emotion regulation. A breakdown in any of these three areas had the potential to drastically impact the social capabilities of any child. Denham provided case studies, research findings, and anecdotal examples of the difficulties experienced by children demonstrating breakdowns in emotional competence. She used these findings to encourage speech-language pathologists to provide early intervention for deficits in emotional competence. So far, research has shown that intervention targeting these skills holds the potential to generalize and overlap into improvements in other areas of social functioning.

Relevance to the current work

I referred to this book when I began studying what emotional competence was and how it could be broken down into different aspects (e.g., expression, understanding and regulation). I used Denham's book to find sources that could be useful in describing the social and emotional deficits that are often observed in children with LI. I studied this book in search of ways that researchers have attempted to target these skills in intervention.

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

Purpose of the study

The purpose of this study was to implement a novel social communication intervention and examine if it could effectively increase the frequency with which children with LI explicitly recognized their own comprehension deficits and requested clarification.

Method

Participants. Four first graders identified with LI (ages 5;10, 6;3, 7;8, and 8;2) and normal cognitive skills were recruited to participate in this study from a special rehabilitative school for handicapped children. All children were receiving speech and language services at the time of the study. Each of the participants was selected because all four children were observed as giving few, if any, indications of monitoring their own comprehension of spoken messages during naturalistic classroom observation.

Procedures. For four to five weeks, each subject received individual sessions three times a week for 20 minutes. In the first phase of the comprehension monitoring treatment program, children were taught to identify, label and demonstrate three behaviors associated with an active orientation to listening (e.g., sitting still, looking at the speaker, and thinking about what the speaker was saying). Second, children were taught to detect and react to "signal inadequacies" (e.g., speaking too loudly or quickly or interference from background noise). Phase three involved teaching the subjects to detect and react to messages with inadequate content (e.g., ambiguous, nonspecific or physically impossible demands). In the final phase, children were taught to identify and react to messages that they could not comprehend due to unfamiliar vocabulary, excessive complexity, or length.

Intervention began with obvious, easily detected examples in order to help the child rapidly understand the distinctions between messages. The child was given a model, instruction, and the opportunity to practice. Complexity gradually increased. At each session, a comprehension monitoring probe task was administered which gave the subject a series of eight commands. Some commands were manageable but others were inadequate due to task difficulty, unfamiliar vocabulary, disturbances in the recording, etc.

Analysis and Results

Probe commands were scored according to accuracy in performing the command and presence or absence of "functional verbal query." These were defined as direct or indirect requests for additional information about the probe. A generalization probe was administered on three different occasions throughout the study: prior to the first baseline, at the 10th session, and three to six weeks posttreatment. Ten different and more complex tasks were administered as a means of examining generalization and guarding against task familiarization.

No subject ever produced a functional verbal query following an adequate command and all adequate commands were successfully executed. For each subject, a rapid increase in the percentage of functional verbal queries following inadequate commands was observed at the onset of treatment and was maintained during posttreatment evaluation. Functional verbal queries were observed more often following inadequate commands that contained glaring and/or concrete obstacles to compliance.

Conclusions

This treatment program aimed to improve the comprehension monitoring performance of four children with LI and posttreatment data revealed promising results. Each of the participants made rapid improvements and follow-up data suggested that the strategies taught during intervention were generalizing. This project was one of the first of its kind to take an exploratory step towards finding effective ways to treat children with social communication difficulties.

Relevance to the current work

Until 2008, this study was one of only eight studies to evaluate the effectiveness of a social communication intervention program for elementary school-aged children with LI. The paucity of available treatment programs for children with social communication difficulties and the promising results of this study were two of the reasons why the current study was undertaken. One limitation of this study was that only one contrived context (recorded probe tasks) was presented. In addition, any evidence of generalization to classroom or home settings was based on anecdotal reports from parents and teachers. The authors suggested much more research on social communication interventions was needed in the future.

Dunn, J., Bretherton, I., & Munn, P. (1987). Conversations about feeling states between mothers and their young children. *Developmental Psychology, 23*(1), 132-139. doi: 0012-1649/87/$00.75

Purpose of the study

The purpose of these two studies was to observe conversations between mothers and their young children for spontaneous discussion of emotions and feeling states.

Method

Study one involved 43 families with a mother and two children when the second child (target) was 18 and 24 months old. Newspaper ads and public health nurses were used to recruit subjects. The mean age difference between the target child and the older child (sibling) was 26 months). Study 2 examined 16 families with a mother and two children when the first child was approximately 25 months old, and then 6 months later. Public health nurses were used to recruit these families.

Procedures. At each of the 6 month intervals for both studies, two home observations lasting one hour each were made, one week apart. Observation sessions were audio-recorded and notes were written by hand to supplement the recordings. Mothers were instructed that observations were intended to be naturalistic so domestic routines and family patterns of interaction should remain as typical and undisturbed as possible.

Analysis and Results

All observations were transcribed and coded for instances of explicit feeling-state words for three categories: quality of consciousness, sensations and physiological states, and emotional states. All verbal productions were categorized as utterances or conversations and analyzed

further (e.g., Which partners explicitly referred to a state? Which partner's feelings were being discussed? Was the production a comment?). Both frequency scores per observation time and proportions of utterances by the mother, sibling, and target child were calculated.

In study 1, all participants showed a significant increase in the number of explicit references to feeling states made between 18 and 24 months. At 18 months, most feeling state references were made by the mother, but by 24 months, the target child also produced frequent feeling state references. Seventy-three percent of feeling state references were made between the mother and target child at 18 months; this increased to 75% at 24 months. Ten percent of feeling state references took place between the sibling and target child at 18 months; this decreased to 7% at 24 months. Seventeen percent of conversations at 18 months were triadic; at 24 months, 15% were triadic. At 18 months, the second-born child's feeling states were the primary focus of conversations about feelings; however, this decreased to 60% by 24 months. The frequency of conversational turns regarding causes of feeling states increased within the 6 month period. Maternal contributions to conversations about feelings were more likely to provide suggestions or explain than to comment; at 24 months, the target children reflected this behavior as well. In study 2, results indicated that between 25 and 32 months, there was no increase in the total amount of conversation. However, the absolute frequency and proportion of total conversational turns concerned with feeling states increased significantly.

Conclusions

The results of these studies suggested that children experience many opportunities to learn about feelings and how to express them. By 24 months, most children have begun to talk about a range of feeling states. A relationship was found between the number of opportunities the mother offered and the extent to which their children verbally expressed their feeling states. By 24 months, children frequently conversed about the causes of feeling states. The 24- to 32-month target children demonstrated some understanding of personal feeling states and the feelings of others and seemed to have some grasp of how to integrate that understanding into their conversations.

Relevance to current work

I referred to this study when developing a coding manual for my research when it was necessary to draw some boundaries between what should be considered an emotion-based word and what should not. This study looked at how typically developing children were able to produce emotion words and that information was important for my study, which examined how well children with LI could produce emotion words following intervention.

Ekman, P., & Cordaro, D. (2011). What is meant by calling emotions basic. *Emotion Review, 3*, 364-370. doi: 10.1177/1754073911410740

Purpose of the work

The purpose of this article was to define basic emotions and the specific boundaries that make emotions unique.

Summary

Basic emotions can be fundamentally distinguished from each other by facial, vocal, or autonomic physiology and antecedent events. Basic emotions are discrete and have evolved through adaptation to our surroundings and life experiences. Basic emotions are what motivate us to action because they prompt us to make choices that will result in circumstances that each of us find to be ideal and relevant to our goals.

Behavior that might be referred to as affective or emotional states are either basic emotions or they are other affective phenomenon saturated with but different from the basic emotions (e.g., mood, emotional trait, or emotional disorder). Seven emotions have been found to be universal, and are thus considered basic: *anger, fear, surprise, sadness, disgust, contempt,* and *happiness*. Affective states are different than emotions in that they do not possess universal, distinctive signals, nor is it definitive that they have antecedent events.

Some have suggested an inherited central mechanism, sometimes called an *affect program*, which directs emotional behavior and sets the body into action by automatic appraising mechanisms. With the aid of these central mechanisms, we have the ability to reflect on what has been adaptive in our evolutionary past and our own personal history. All at once, the body can involuntarily and almost instantaneously react to situations by way of face and voice, learned and autonomic actions, retrieval of relevant memories and expectations, and interpretation of our current circumstances. Once these automatic motions are set into motion, they continue until they have been executed, meaning they cannot be interrupted. Some of these affect programs can be carried out in as little as a single second, allowing for quick sequences of different emotions to surface from a solitary event.

Conclusions

The authors suggested that language and emotion are independent of each other. Although some cultures and languages have different names or lack names for emotions that people of other cultures experience, it does not mean that they are unable to experience the same emotions. Some emotions are universally experienced by people of every culture: *anger, fear, sadness, happiness, surprise, contempt,* and *disgust*. Although there is a fine line between basic emotions and affective states, basic emotions are defined as those which are universally distinguishable by face, voice, autonomic physiology and context and which evolve according to our surroundings and experiences.

Relevance to the current work

This study was crucial to my thesis. I used Ekman's work as a basis for determining what would or would not be considered an emotion-based word in my data analysis. There are unlimited feelings that a person can experience. However, in terms of my thesis, a line had to be drawn between what was included in the data and what was excluded. I used Ekman's list of basic emotions for determining which productions were emotion-based words. One limitation to this study was the fact that many emotion words are used interchangeably, even if the meanings are not the same (e.g., "I'm disgusted with him" might actually mean "I'm very angry with him").

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

Purpose of the study

The aims of this study were to examine if children with LI have difficulty identifying facial expressions and making inferences based on facial expressions. The authors wanted to examine if inferencing difficulties were modality-specific (if they existed at all).

Method

Participants. This study involved 24 subjects divided into a group with LI and a chronologically age-matched group (CA). Each group consisted of 6 boys and 6 girls (group with LI mean age = 5;9, *SD* = 4.7; CA group mean age = 5;8, *SD* = 3.9). Prior to testing, all participants were administered the Clinical Evaluation of Language Fundamentals-Preschool (CELF-P; Wiig, Secord, & Semel, 1992) and nonverbal subtests of the Kaufman Assessment Battery for Children (KABC; Kaufman & Kaufman, 1983). Children in both groups needed a composite score of at least an 85 on the KABC subtests. Children in the CA group earned a standard score of at least 90 on comprehension subtests of the CELF-P and children in the group with LI earned a score below 85. Children in the group with LI were enrolled in speech and language services.

Procedures. Four picture cards depicting the emotions *happy, surprised, mad*, and *sad* were provided. Nine stories were created for each of the four emotions, for a total of 36 stories. Each story was depicted in three modalities: visual only, verbal only, and visual/verbal concurrently. Visual depictions consisted of three black and white drawings of a common situation and its resolution. The resolution drawing always pictured a person without a face, allowing the child to select which facial expression card adequately completed the story. Verbal stimuli consisted of a three-sentence story that corresponded to each of the three drawings utilized in the visual depiction. For visual/verbal presentations, both the drawings and short stories were presented simultaneously.

In a production task, the four drawings of facial expressions were presented and the child was asked to identify how the person felt. In a comprehension task, each child was shown the four facial expressions and asked to "point to *happy (sad, etc.*)." In an inferencing task children were presented with the four facial expression drawings along with several stories about a particular emotion. The children were asked to fill in the face that completed the story.

Analysis and Results

Results of the production task were audio recorded and transcribed; a dichotomous correct/incorrect score was given for each response. Children in both groups were 100% accurate in labeling *happy, sad,* and *mad* in the production task. Participants from both groups completed all portions of the comprehension task with 100% accuracy. On the inferencing task, children with LI were not as proficient at making emotional inferences for all four emotions as their CA matched peers, regardless of modality of presentation. Visual/verbal presentations resulted in more accurate identifications than visual presentations only. Children with LI were more likely to make valence errors when they initially misidentified the intended emotion.

Conclusions

The results of this study suggested that children with LI differ from their typically developing peers in the way they process social information. Although both groups of children could successfully identify the four different emotions, children with LI group demonstrated difficulty integrating that information to make social inferences regarding a character's feelings. Children in both groups made the most correct inferences for *happy* and the most incorrect inferences for *surprised*. The authors suggested that valence errors might have a very negative impact on social interactions; children with LI made more valence errors than their typical peers, potentially contributing to their poor social communication skills. The use of multiple and concurrent modalities seemed to improve everyone's responses.

Relevance to the current work

This study was important in illustrating that there is a need to teach emotion inferencing in addition to emotion recognition when treating children with LI. Both of these skills were targeted in the intervention implemented for my thesis. In addition, this study showed that children with LI benefited when multiple modalities were utilized concurrently; in my study, the clinicians used up to seven different modalities to teach children with LI to better understand emotions.

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

Purpose of the work

The purpose of this study was to examine the ability of children with and without LI to make emotional inferences during conversation, identify variables that might predict emotion inferencing, and to explain how these variables affected social competence.

Method

Participants. Sixteen children with LI (8 boys and 8 girls aged 4;6-5;7) and 16 children with typically developing language skills (TL; 7 boys and 9 girls aged 4;6-5;7) participated in this study. Children in both groups earned a composite score of 90 or above on nonverbal subtests of the KABC. Children in the TL group earned composite scores of at least 90 on receptive subtests of the CELF-P while children in the group with LI earned composite scores more than 1 *SD* below the mean.

Procedures. Seven tasks were administered to each child individually in a single session lasting one hour. The inferencing task involved the presentation of 36 short stories designed to activate knowledge about three particular emotions: *happy, sad,* and *afraid*. Following instruction, children were asked to name the facial expression or object (for filler stories) that appropriately completed each story as quickly and as accurately as possible. In half of the stories, the facial expression matched the implied emotion, and in the other half it did not.

Language was assessed using receptive subtests of the CELF-P and a confrontational naming task that required the child to name the gender and emotion depicted in 40 pictures of faces. In addition, children were asked to draw three pictures of themselves feeling *happy, sad,* and *afraid.* They were then asked to provide examples of what made them feel each of those emotions. Cognition was assessed using nonverbal subtests of the KABC. Response times were measured to see if children with LI required more time to make inferences. The teachers of each child were asked to complete the social skills subtests of the Preschool Kindergarten Behavior Scales-Second Edition (PKBS-2; Merrell, 2003) to assess social cooperation, interaction, and independence.

Analysis and Results

Analysis of children's abilities to infer emotions in discourse comprehension revealed a significant main effect for condition. Children in the TL group were significantly faster than children with LI at naming the emotions in matched conditions but children of both groups were faster at naming the emotions in matched conditions than in mismatched conditions. However, children with LI responded to mismatched conditions at the same speed they responded to matched conditions. Inferencing ability was determined by subtracting mean response time in the matched condition from the mismatched condition for each emotion. Four variables were found to influence inferencing ability: CELF-P score, confrontational naming time, emotion situation knowledge, and vocal response time. The PKBS-2 revealed that the ability to make emotional inferences and ability to draw facial expressions were both significantly related to social competence.

Conclusions

The fact that children with LI demonstrated no differences between response times for naming emotions in matched and mismatched conditions suggested that children with TL were more likely to infer emotional states during conversation than children with LI. The authors suggested that once children were capable of naming emotions and describing situations that caused different emotions, they possessed the necessary skills for inferring emotions; therefore, deficits in emotion inferencing may be due in part to insufficient knowledge of situations that cause particular emotions.

Relevance to the current work

This study was relevant to my thesis because it provided data supporting the argument that children with LI often demonstrate deficits in emotion inferencing, which is one important aspect of emotional competence.

Frank, M. K. (2011). *The efficacy of social communication intervention in improving emotion inferencing for school-aged children with language impairment* (unpublished master's thesis). Brigham Young University, Provo, Utah.

Purpose of the study

Emotion Words

In this study, a novel social communication intervention was administered to children with LI. The author examined the telling and retelling of short narratives by these children to determine how effective this particular intervention was in improving the emotional inferencing abilities of children with LI.

Method

Participants. Six children between the ages of 5;1 and 6;10 were recruited to this study from a local school district. Four of these children (3 boys, 1 girl) were diagnosed with LI by a certified speech-language pathologist and the other 2 children (2 boys) were diagnosed with autism spectrum disorders (ASD). During the time of the study, all six participants were receiving speech and language services through their school and some were receiving additional special education services such as resource.

Procedures. Baseline and follow-up procedures involved the presentation of several vignettes centered around a gender-neutral character named Chris. In each vignette, Chris found himself in a situation where he was expected to experience a particular emotion such as *happiness, sadness, anger, fear, surprise,* or *disgust.* Each baseline and follow-up session included vignettes intended to elicit all six emotions three times each. The vignettes were presented with colored line-drawings to facilitate the children's' understanding of each story. Each child was also presented with a set of ambiguous objects (e.g., a camera that did not work or some "yucky" goo that was found on the ground) intended to elicit particular emotions from the participants.

The actual intervention involved a series of lesson plans addressing emotion understanding. Each participant received twenty 20-minute sessions with one of two graduate-level clinicians. The clinician and student would tell and retell stories from Mercer Mayer's *A Boy, A Dog, and A Frog* (1967) series while discussing the emotions the characters were experiencing and why. The clinician followed a loosely structured script in describing how the facial expressions and body language of the characters could reveal the emotions the characters were feeling. In some sessions, the clinician introduced inferencing charts designed to explicitly illustrate the emotions felt by each character and why they felt that way. The participants had a journal where they could draw the emotions discussed during that day's session. To assist in generalization, the clinician included activities that required the child to think of a time he or she had felt each emotion.

Results

Intervention fidelity was established with the use of scripts, regular intervention schedules, and periodic review of the video-recorded intervention sessions with the study director. Baseline and follow-up sessions were video recorded and data were collected on-line by the clinicians administering the procedures. Participant responses were tallied and frequencies of correct answers to emotion inferencing questions were averaged. In general, *happiness* was the most correctly identified emotion by all participants. *Fear* was particularly difficult for children with LI to identify and only one participant improved significantly in his ability to infer fear from pre- to post-treatment. *Anger* was difficult for every child and most correct inferences appeared to be the result of guessing.

Conclusions

During baseline, intervention, and follow-up tasks, all the participants demonstrated considerable difficulty in making correct inferences regarding the emotions experienced by characters in a story. Only two male participants (one with ASD, one with LI) improved in their ability to infer emotions when presented with a situation designed to elicit a particular emotion. The other four participants did not demonstrate any significant gains in inferencing ability. These results agreed with current literature, which stated that children with LI and ASD demonstrate difficulty inferring emotions.

Relevance to Current Work

This study was part of the same large-scale project that my thesis stemmed from; the participants and intervention procedures were identical. This project focused on emotion understanding (particular the ability to infer the emotions of others), an essential aspect of emotional competence.

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)

Purpose of the study

The purpose of this study was to define emotion regulation and how it relates to language ability. A preliminary study examined the emotion regulation abilities of children with LI to see if they differed from their typical peers and if their abilities were affected by age or gender.

Method

Participants. The study examined 41 children with LI and 41 typically developing children. Children were referred to the group with LI by their school speech-language pathologists for meeting the following criteria: between 6 to 9 or 10 to 13 years old, an average IQ, diagnosed with LI and currently enrolled in speech and language services, standard score at least 1 *SD* below the mean on a standardized language assessment, and no hearing or behavioral concerns. Children in the typically developing group were matched in age (up to 7 months) and gender to each child in the LI group. A total of 35 school teachers participated in student evaluations.

Procedures. Teachers were asked to complete the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997; 1998) for each of the participants enrolled in their classrooms. The ERC contained 24 items that inquired about affective lability, intensity, valence, flexibility, and situational appropriateness of emotional expressions in school-aged children. Teachers were aware of which children were diagnosed with LI (because these children attended speech and language services) but were unaware of the purpose of the study.

Analysis and Results

Analysis revealed that significant main effects were present for both group and gender. A simple effect was revealed for gender, indicating that girls earned higher overall scores on the ERC than boys, with boys performing particularly low on the lability/negativity subscales. Typical children earned higher scores than children identified with LI for both the lability/negativity and emotion regulation subscales. Within-group variability was relatively narrow for typical children and much more widespread for children identified with LI. A strong effect was found for group membership; approximately 70% variability in ERCs was due to group distinction. Older children with LI received significantly lower ERC scores than younger children with LI.

Conclusions

Students with LI earned emotion regulation scores that were significantly lower than their typically developing peers. This may have suggested that teachers had a general bias against individuals with disabilities or it may have suggested that emotion regulation contributed to LI and further research was needed in that area. The fact that older children with LI performed significantly more poorly in comparison to their peers than younger children with LI did indicated that time and maturation were not resolving the difficulties children with LI were facing. Although this study was exploratory, it provided evidence that children with LI have difficulties with emotion regulation.

Relevance to the current work

This study was important in that it showed children with LI struggle with emotion regulation, which is one aspect of emotional competence. My thesis research was based on the assumption that children with LI have difficulties with emotional competence; this study helped to establish a rationale for that assumption. Because this study utilized teacher rating scales, results were a measure of teacher perceptions of emotion regulation rather than a direct measurement of the children's abilities. However, emotion regulation is difficult to measure in a naturalistic way.

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

Purpose of the study

The purpose of this study was to examine the reciprocal friendships and peer acceptance of children with SLI. The authors provided some suggestions for ways to improve these friendships.

Method

Participants. This study included eight elementary school-aged children (7 girls and 1 boy aged 6;1-10;7) who had been previously diagnosed with SLI. Each subject earned test scores at least 1 *SD* below the mean on formal language assessments, and demonstrated typical

intellectual ability and typical hearing. All participants were enrolled in speech and language services at the time of the study.

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

Analysis and Results

    Peer ratings were scored on a 3-point scale: 1 indicating they did not like to play with the child, 2 indicating that they "kinda" liked to play with the child, and 3 indicating that they liked to play with the child a lot. Overall and gender-rating scores were calculated for each child. For the peer acceptance task, each child's answers regarding their three best friends were compared across the classroom to determine the presence of reciprocal friendships. Classmates rated three of the eight participants with SLI at least 1 *SD* below their class means. Five of the eight children were never named as being among someone's top three friends. Three first grade girls with SLI had established reciprocal friendships with at least one other girl who also was identified with SLI. Surprisingly, one first grader with SLI was one of the most popular girls in the class, being identified as a best friend by six children and having two reciprocal friends.

Conclusions

    It was surprising that not even half of the eight children with SLI were rated as being poorly accepted, however results for each individual were highly variable from classmate to classmate. A single classroom contained two girls with SLI, one being one of the most popular children in the class and another being the least popular. Most of these children were observed to be on the outskirts of social activity within their classes. The authors suggested that social communication was one area that needed to be addressed more often and intensively when treating children with SLI. Some proposed procedures for facilitation included utilizing authentic contexts, flexible educational programming, and collaborative teamwork among professionals and parents.

Relevance to the current work

    This study illustrated some of the social difficulties experienced by children with SLI; many of these children lacked quality friendships and were viewed negatively by their peers. Therefore, intervention for children with SLI needs to focus on these social deficits. The intervention examined in my thesis addressed this issue: it taught skills pertaining to emotional competence, an area directly related to social functioning.

Fujiki, M., Brinton, B., McCleve, C. P., Anderson, V. W., & Chamberlain, J. P. (in press). A social communication intervention to increase the production of validating comments by children with language impairment. *Language, Speech, and Hearing Services in Schools.*

Purpose of the study

This study examined the effectiveness of a pilot intervention designed to increase the number of validating comments produced by children with LI.

Method

Participants. Four elementary school-aged children (3 females, 1 male; ages 6;4-9;4) identified with LI were recruited to the study. All participants were enrolled in mainstream classrooms and received pull-out speech and language services. Each of the four children demonstrated typical hearing, mental and behavioral skills but performed at least 1 *SD* below the mean on at least one standardized language assessment. Social information was provided by each child's classroom teacher and supported by results of the Teacher Behavior Rating Scale (TBRS; Hart & Robinson, 1996). In addition, typically developing grade- and gender-matched children participated in cooperative learning situations that served as baseline and follow-up sessions for each of the four target children.

Procedures. Social competence was assessed before and after intervention using sociometric measures of peer acceptance and friendship (completed by the target children's classmates) and teacher ratings of sociability using the TBRS. Baseline and follow-up procedures consisted of observing each target child in three 20-minute cooperative learning activities with two typically developing peers. The intervention program lasted for 10 weeks; the three first grade participants received 40 intervention sessions while the fourth grade participant receive twenty 30-minute sessions. Each week, instructional sessions were administered to introduce, discuss, and rehearse access behaviors and cooperative play behaviors. Validating comments were taught as a part of these behaviors. Additional sessions provided the target children with opportunities to play with two typically developing peers in a game setting. The target children were instructed to practice the target behaviors they had been taught during instructional sessions. Clinicians reviewed sessions and target behaviors with the participants regularly.

Analysis and Results

All sessions were video recorded. The clinicians examined validating comments (statements that were directed to peers for the purpose of encouraging further interaction) and negative comments produced by the target children and their peers. Results varied for each participant. All four children produced validating comments in almost every intervention session. The fourth grade participant demonstrated the largest increase in validating comments during therapy, which was generally maintained during follow-up. Of the three first grade participants, two showed an increase in validating comments and one showed a decrease in negative comments. Regarding social outcomes, three of the children showed little change in peer acceptance measures and one actually decreased. The two children who demonstrated increases in validating comments were also perceived by their teachers as being more likeable and prosocial by the end of the intervention.

Conclusions

Due to the fact that teachers were not aware of the nature of this intervention, it was likely that their improved perceptions the target children's performance was authentic. This treatment did not resolve the social difficulties of any of these four children but some of them did demonstrate that they could successfully learn to make positive comments to their peers.

Relevance to the current work

This study was one among relatively few others that have focused on targeting social communication deficits in elementary school-aged children with LI. Because of the lack of research available regarding valid frameworks for pragmatic intervention, studies like this are highly valuable in guiding researchers to areas in need of further investigation in the field of social communication.

Fujiki, M., Brinton, B., Morgan, M., & Hart, C. H. (1999). Withdrawn and sociable behavior of children with language impairment. *Language, Speech, and Hearing Services in Schools, 30,* 183-195. doi: 0161/1461/99/3002/0183

Purpose of the study

The aim of this study was to examine the withdrawal and sociability behaviors in children with LI in comparison to their typically developing peers.

Method

Participants. This study included 41 children identified with LI and 41 typically developing peers. Children in the group with LI were required to meet the following standards: between 5-8 years and 10-13 years old, nonverbal IQ of 80 or above, typical hearing and behavior, diagnosed with LI based on performance of at least 1 *SD* below the mean on a formal language assessment, and enrollment in a mainstream classroom with speech and language services on a pull out basis. Children in the typically developing group were gender- and age-matched (within 6 months) to the children in the group with LI.

Procedures. The TBRS was administered to each of the participants' classroom teachers to evaluate the social skills of children with LI in comparison to their typically developing peers. Each teacher filled out at least two TBRS questionnaires: one for a child in the group with LI and one for his or her typical peer. The TBRS assessed three subtypes of withdrawn behavior: solitary-active withdrawal, reticence, and solitary-passive withdrawal. In addition, two subtypes of sociability were assessed: impulse control/likeability and prosocial behavior.

Analysis and Results

Means were calculated for each participant across each subtype. Each item on the questionnaire was scored as 0, 1, or 2 (with 0 indicating the lowest amount of a behavior and 2 indicating the highest). Five typical children (12%) were rated as low in at least two categories and 25 typical children (61%) were not perceived as having a problem in any area. On the other hand, 26 children in the group with LI (63%) were rated as low in at least two categories and only 8 children (20%) were rated as not having any social difficulties. The greatest difference between the two groups was in reticence ratings. Solitary-active withdrawal was relatively rare

even in the group with LI but boys with LI demonstrated significantly higher levels of this type of withdrawal than girls with LI. There was no difference between groups in solitary-passive withdrawal. TBRS responses indicated that almost every child in the group with LI who demonstrated reticence or solitary-active withdrawal also demonstrated limited sociability.

Conclusions

The authors concluded that children with LI are in fact vulnerable to social problems due to atypical withdrawal and sociability behaviors. Results from this study suggested that language and social competence were interconnected. The fact that children with LI were rated as being more reticent than their peers suggested that these children avoided approaching others out of anxiety, fear, or ineptitude. Unfortunately, the older children with LI demonstrated that social problems may persist despite their increased linguistic skills.

Relevance to the current work

This study demonstrated the social impact that LI can have on school-aged children. Children with LI were more withdrawn and less prosocial than their typically developing peers regardless of age. The intervention that was administered in my thesis specifically targeted social communication skills in an attempt to improve the social functioning of children with LI as well as the way they were perceived by their teachers.

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

Purpose of the study

The purpose of this study was to determine the roles of language ability and emotion regulation in predicting reticence in children identified with SLI.

Method

Participants. Eighty-six children were recruited to participate in this study. Forty-three of the children were placed into the group with SLI group based on the following criteria: between 5-8 and 9-12 years old, nonverbal IQ above 80, diagnosis of SLI by a speech language pathologist and enrollment in speech and language services at the time of the study, performance of at least 1 *SD* below the mean on a standardized language assessment, and typical hearing and behavior. The other 43 children demonstrated typically developing language skills and were gender- and age-matched (within 6 months for all but three children) to each of the participants with SLI. Forty-three mainstream classroom teachers completed questionnaires for at least two participants (one with SLI, one typically developing) in order to assess emotion regulation and reticence.

Procedures. Every teacher completed the ERC, a checklist assessing emotional expressions, for each of the participants regularly enrolled in their classes. The ERC contained two subscales: the lability/negativity factor (which examined the inappropriate regulation of

negative emotion, mood variability, and inflexibility of emotional response) and emotion regulation factor (which examined appropriate displays of emotion, empathy, and awareness of one's own emotions). In addition to the ERC, each teacher completed the TBRS for the same children in order to measure withdrawal and sociable behaviors. The CASL was administered to each of the 86 participants as a measure of language ability.

Analysis and Results

The ERC and TBRS scores of children with SLI were compared to the scores of typical peers in order to determine areas of difference. Regression analyses were completed to examine the connections between language, emotion regulation and reticence. Results indicated that CASL composite scores and emotion regulation scores from the ERC were significant and equal predictors of reticence in children of all groups. In addition, both language level and emotion regulation scores were uniquely but equally correlated to reticence scores.

Conclusions

According to teacher reports, children with SLI demonstrated more reticence and less of an ability to regulate their emotions (particularly the elevating of emotions when appropriate) than their typical peers. Together, language ability and emotion regulation were revealed to be powerful tools in predicting reticence in children with SLI. These results confirmed previous findings that children with SLI may have difficulties in areas besides language.

Relevance to the current work

This study provided evidence supporting the argument that children with LI have difficulties with different aspects of emotional competence, particularly emotion regulation. The findings of this study served as a rationale for this thesis, which examined the efficacy of an intervention program designed to target deficient emotional competence in children with LI. It is important to recognize that emotion regulation is difficult to assess in a quantifiable way. Therefore, this study utilized an indirect yet naturalistic measurement (questionnaires which assessed how teachers perceived their students' ability to regulate emotions).

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

Purpose of the work

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

Method

Participants. Thirty-eight elementary school-aged children were recruited to the study.
Nineteen of the children (11 females and 8 males; ages 7;9-10;10) were placed in the group with

LI. Children in the LI group met the following requirements: previous identification of LI, enrollment in speech and language services at the time of the study, and standardized test scores indicating LI. The other 19 children (11 females and 8 males; ages 7;9-10;10) were placed in the typically developing group and were gender- and age-matched to each of the participants in the group with LI.

  Procedures. A single short narrative was recorded by four different individuals (2 females and 2 males) who read the passage three times using each of the emotions of *happiness, anger, fear,* and *sadness,* for a total of 48 different recordings. Each child was presented with 16 recordings (4 representing each emotion) and was asked to indicate which emotion was being expressed.

Analysis and Results

  Each session was video recorded. The participants' responses were scored on a five-point scale for each intended emotion (e.g., 0 = no correct responses for that emotion; 4 = all responses correct). Individual patterns of performance and patterns of confusion between the four emotions were examined. Results indicated that *happiness* was the most easily identified, followed by *anger, sadness*, and *fear*. Fear and sadness were frequently confused for each other, especially by children in the group with LI. Surprisingly, children in both groups occasionally confused anger for happiness although the children with LI made these confusions slightly more often. Overall, the typically developing children performed significantly better on this task than children with LI although there was overlap in performance.   A correlation was observed between age and the ability to identify fear and happiness. The identification of *sadness* was correlated with language ability. However, none of these correlations was significant.

Conclusions

  This study supported previous findings that children with LI have difficulties with emotion understanding. In particular, this study provided evidence that children with LI were deficient in their ability to recognize more subtle differences in prosodic emotion cues than their typically developing peers in addition to demonstrating difficulty in recognizing and inferring emotions conveyed by facial expressions.

Relevance to the current work

  This study was important to my thesis because it supported the argument that children with LI demonstrate difficulties with multiple aspects of emotional competence, particularly emotion understanding. My thesis involved a social communication intervention that targeted emotional competence in hopes that children with LI could learn to improve their ability to understand emotions.

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

Purpose of the study

The aim of this study was to develop an Evidence Based Systematic Review (EBSR) of treatment for social communication disorders and use that review to determine areas in need of further research in the field of social communication intervention.

Method

Authors. A committee on Language Use in Social Interactions in School Aged Children was created in collaboration with the American Speech-Language-Hearing Association (ASHA) and ASHA's National Center for Evidence-Based Practice in Communication Disorders (N-CEP). The committee consisted of five professional speech and language pathology researchers associated with various colleges and universities. The committee focused its review on school-aged children with LI. Children who presented with sensory deficits, neurodevelopmental disorders, brain damage, or intellectual disability were excluded from the review.

Procedures. Studies that were included in the review were written in English and published in peer-reviewed journals between 1975 and June 2008. Eleven different treatment approaches used to treat children with LI were included: positive behavioral support, parent treatment programs, milieu teaching treatments, communication partners treatment, peer mediation, conversation/discourse treatments, pragmatic treatments, social skills training treatment, applied behavior analysis (ABA), narrative/discourse treatments, and responsivity training treatments. The authors searched 22 electronic databases using key words related to social communication impairments or interventions. Eight studies were included in the EBSR.

Analysis and Results

Each of the eight studies included in the review were analyzed for methodological rigor by at least two committee members. Points were awarded for quality of the study if the following criteria were met: study protocol described in replicable detail; testers and coders were blind to participants' group assignments; participants were randomly selected and assigned to groups; treatment fidelity was described; quantifiable data allowing for statistical tests of significance were provided; an effect size and confidence limits were reported; and if there were no dropouts from the original group assignments. The EBSR revealed that all eight studies were considered exploratory and the methodological quality was highly variable. Participants in each of the eight studies represented a heterogeneous diagnostic group. In some studies, treatment goals were not specified; in others, treatment procedures were not described well enough that they could be replicated.

Conclusions

The authors concluded that as of 2008, social communication intervention was clearly in its infancy. Even now, there is relatively little normative data available regarding the pragmatic behaviors of children with LI. Unfortunately, this has made designing effective intervention procedures difficult and drawing general conclusions about social communication intervention almost impossible. In addition, studies regarding social communication intervention have failed to examine whether targeted communication improvements have generalized. However, the

results of the EBSR suggested that social communication and pragmatic language intervention have shown some promise in improving in the social functioning of children with LI.

Relevance to the current work

This study was extremely important to my thesis because it summarized the methodology, efficacy, and validity of all the social communication and pragmatic language interventions that had been studied from 1975 until 2008. The suggestions offered for future research by the authors of this study were considered when determining the design protocol of the intervention that was administered in the study my thesis was associated with. In particular, the authors suggested that future research needed to address the replication of intervention approaches, larger samples needed to be used, diagnostic groups needed to be more homogeneous, and comparison control groups needed to be included.

Gertner, B. L., Rice, M. L., & Hadley, P. A. (1994). Influence of communicative competence on peer preferences in a preschool classroom. *Journal of Speech and Hearing Research, 37*(4), 913-923.

Purpose of the study

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

Method

Participants. Thirty-one children (19 males and 12 females) who were enrolled in a preschool targeting language acquisition were recruited to participate in this study. All subjects demonstrated typical hearing ability and all but two subjects achieved at least average IQ scores. Nine children who demonstrated average language skills according to formal and informal language assessment were placed in the normally developing (ND) group. Twelve children who demonstrated speech and or language disorders according to standardized assessment were placed in the group with S/LI. Ten participants who had recently moved to the U.S. with their families and did not have previous exposure to the English language were placed in the ESL group.

Procedures. Each of the participants was administered positive and negative nomination measures following a brief training which oriented them to the requirements of each task. The participants were presented with pictures of each of their classmates and asked to name each person. Next, each child was tasked with sequentially pointing to three pictures of classmates he or she liked to play with during classroom dramatic play activities. Finally, the children were asked to select three children he or she did not enjoy playing with.

Analysis and Results

The number of positive and negative nominations for each child was totaled. Group differences were only significant for positive nominations. The children in the ND group were most "liked" by their peers. Only one child in the S/LI group was considered to be "liked" and

eight of the 10 ESL children received an average number of positive nominations. The only children who were "disliked" by their peers belonged to either the S/LI group or the ESL group. Results indicated that positive nominations were moderately correlated with age, language skills, and articulation ability. Negative nominations were only correlated with articulation ability.

Conclusions

The authors concluded that limited language ability was associated with being socially accepted among peers. Children with typical language abilities were clearly the most "liked" and only children with limited language proficiency were "disliked." Further analysis suggested that language ability was the greatest predictor of acceptance.

Relevance to the current work

This study demonstrated how much of an effect language differences and disorders can potentially have on forming friendships and peer acceptance. Specifically, children whose speech was difficult to understand were judged negatively by their peers. Children with LI were particularly at risk for poor friendships due to their limited language ability. The children in my thesis demonstrated significant social communication deficits. Results from this study suggested that the children in my study were at high risk for developing poor friendships. The authors supported the argument that children with LI need to receive social communication intervention.

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

Purpose of the study

The purpose of this study was to examine children with typical language, marginal language (previously diagnosed with speech or language impairment but currently testing within normal limits), LI, and speech impairment (SI) in order to determine if there are differences in the types of responses provided by these groups during social interaction.

Method

Participants. Eighteen students between the ages of 3 and 5 who demonstrated typical IQ and typical social, emotional, and physical development were recruited for the study from a special preschool serving children of various language abilities. Children who attended the school for impairments in speech and language were selected as participants and divided into four groups: LI (4 children), SI (4 children), marginal language (4) and typical language (6). Children in the LI group had earned standard scores of at least 1 *SD* below the mean on a standardized language assessment. Children were placed in the SI who demonstrated multiple atypical articulation errors. Children in the marginal group had been classified as LI or SI within the previous year but had since made significant progress. Although they still attended the school, demonstrated speech and language abilities within normal limits.
Procedures. Each child was observed interacting with peers and/or teachers during play-center time for four minutes on six different occasions. Play-center time consisted of the children choosing to play in four different activity areas: dramatic play, art table, quiet area, and

block area. Clinicians quietly followed the target children around the classroom and recorded their responses during partner interactions.

Analysis and Results

For each child observation, the clinician noted the choice of play area and the conversational partners with whom the target child interacted. Coding of interactions began with any interaction attempts made by or towards the target child. Responses were recorded according to whether they prompted the next conversational turn, acknowledged the previous conversational turn, attended to the turn but offered no response, or ignored the conversational turn. Results indicated that children in all four groups engaged in similar levels of interaction (e.g., number of interactions and number of total conversational turns). Typical language and marginal children interacted with peers and adults equally but children with LI and SI participated in more interactions with adults than peers. Children in the LI and SI groups were also more likely to be ignored by their conversational partners and less likely to respond to conversational turns. Sixteen of the 18 subjects favored dramatic play activities and all of the children participated in this play area for at least a portion of the study.

Conclusions

This study provided evidence that communication abilities influenced the participation of preschool children in social interactions. Specifically, children belonging to the groups with LI and SI were less likely to interact with peers (instead of adults), were more likely to be ignored by their peers, and were less likely to respond to conversational turns initiated by others. Without aid from an adult, interactions between children with LI and SI and their peers were tenuous. One significant implication emerging from these results was that achieving successful interactions between children with LI or SI and their peers was unlikely if intervention involved one-on-one interactions between these children and an adult rather than a peer.

Relevance to the current work

This study illustrated some of the social difficulties that children with LI faced when interacting with their peers. My thesis involved a social communication intervention that targeted emotional competence with the hope that these skills would generalize and improve the overall social interactions of children with LI.

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.

Purpose of the study

This study examined how an intervention designed to improve emotion understanding affected teachers' perceptions of each child's social behaviors.

Method

Participants. Six children (5 boys and 1 girl) demonstrating difficulties in social communication were recruited to this study by the principal and speech language pathologist of the local elementary school they attended. Two boys (ages 5;1-5;7) carried the primary diagnosis of ASD. Three boys and one girl (ages 5;7-6;10) were diagnosed with LI. At the time of this study, all six participants were receiving speech and language intervention in their school. All six earned a composite language score below 85 on the *Comprehensive Assessment of Spoken Language* (CASL; Carrow-Woolfolk, 1999) and an IQ greater than 80 on the *Universal Nonverbal Intelligence Test* (UNIT; Bracken & MaCallum, 2003). Pure tone hearing screenings through the school district revealed typical hearing

Procedures. Intervention was provided by two graduate student clinicians under the supervision of the school's onsite master's level speech-language pathologist and the university clinic director, who was also a master's level speech-language pathologist. Each participant received twenty, 20-minute treatment sessions held either twice or three times a week. During each session, Mercer Mayer's *A Boy, A Dog and A Frog* (1967) series was utilized to emphasize and discuss emotions. First, the student and clinician looked at the book and the child was asked to tell the story without prompts. The clinician then explored the story with the child using a script that emphasized character emotions, labeling and inferring emotions, contrasting emotions, and cause and effect emotions. The child was given props and asked to act out the story while the clinician highlighted emotion and causal relationships using connective words (e.g., because, so if, then, since). Contrasting emotions were also acted out and developed further using charts that highlighted the perspectives of each character in the story. Students were given the opportunity to journal key points from each session; the clinician asked the child questions to help the child connect information from the session to their own personal experiences. Finally, the students went through the story again adding thought bubbles to each character in order explicitly demonstrate the emotions (and contrasting emotions) felt by each character. The students drew themselves into the story and added thought bubbles to express their personal feelings.

Analysis and Results

Prior to and following intervention, each of the students' teachers was asked to complete the TBRS (Hart & Robinson, 1996) to measure changes in their perceptions of the students' social and withdrawal behaviors. Teachers were aware that their students were enrolled in speech and language therapy but were not informed of the details of the intervention or which questions on the TBRS were being studied by the research team. Areas measured by the TBRS included solitary-active withdrawal, reticence, solitary-passive withdrawal, prosocial behaviors and impulse control/likability. The responses on the TBRS indicated that a third of the participants were reported to demonstrate general positive changes in behavior following intervention. Half of the participants were reported as demonstrating a decrease in solitary-active withdrawal, which was considered the most negative type of withdrawal behavior. Five out of six participants earned higher ratings of prosocial behavior following intervention.

Conclusions

The author concluded that teacher ratings for all of the participants improved on at least one subscale following treatment. Solitary-active withdrawal has been viewed as causing the

most severe social consequences (e.g., peer rejection, social isolation, attracting negative attention); the author viewed the reduction in solitary-active withdrawal behavior reported by the teachers of several participants as the most positive indicator of change following treatment. Some participants demonstrated an increase in solitary-passive withdrawal; this was not necessarily considered to be a negative result because it had the most positive implications of the three withdrawal behaviors. The author concluded that for the participants involved in this study, the treatment was effective in influencing general behaviors related to social communication—social intervention targeting emotion understanding may be most effective when attempting to reduce solitary-active withdrawal.

Relevance to the current work

This thesis was a part of the same large-scale study as my thesis. My thesis analyzed different data from the same treatment sessions.

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

Purpose of the study

The aim of this study was to examine how withdrawal behaviors and levels of sociability influenced the severity of LI in school-aged children.

Method

Participants. This study included 41 children identified with SLI and 41 children who demonstrated typical language skills. Inclusion in the group with SLI required meeting the following criteria: between 6-9 or 10-13 years old, a composite IQ above 80, enrollment in speech and language services at the time of the study, performance at least 1 *SD* below the mean on a standardized language assessment, typical hearing ability, and no history of behavioral or emotional problems. Children in the typical language group were gender- and age-matched (within 7 months) to children in the group with SLI. The mainstream classroom teachers of each of the participants (35 teachers) contributed to the study by filling out questionnaires about social behaviors of the subjects who were enrolled in their classrooms.

Procedures. Teachers were asked to complete the TBRS for each of their students who were recruited to participate in the study. The TBRS contained 161 questions that focused on withdrawal behavior and sociability. A 3-point scale (0 = never, 1 = sometimes, 2 = often) was used to rate the frequency with which different withdrawal and sociability behaviors were observed in each participant. In addition, the CELF-R was administered to the 41 children with SLI. Of these children, 29 demonstrated deficits in both expressive and receptive language, and 12 demonstrated expressive deficits only.

Analysis and Results

After each of the teachers completed the TBRS for the students in their classes who were participating in the study, scores for withdrawn and sociability behaviors were compared.

Analysis focused on whether children with more severe forms of LI were perceived more poorly on a measure of social communication ability than children with less severe forms of LI and children with typical language skills. TBRS scores indicated that children with SLI were reported to demonstrate higher levels of withdrawal behaviors than their peers, particularly reticence. Most children in the group with SLI received reticence scores at least 1 *SD* below the mean of the typical group. The group with SLI also demonstrated higher levels of solitary-passive withdrawal. There was no difference between groups regarding the presence of solitary-active withdrawal. Teachers scored children with SLI as significantly lower in likeability and prosocial behaviors than their peers.

Conclusions

For most children, SLI did not exist independent of other deficits. The results of this study were concerning due to the fact that reticence is typically associated with social uncertainty, anxiety and wariness and often leads to peer rejection. The severity of SLI appeared to be associated with some sociable behaviors (e.g., prosocial behavior) but not with most withdrawal behaviors.

Relevance to the current work

This study provided evidence supporting the argument that children with SLI are often perceived as being less sociable and more withdrawn than their typically developing peers. These behaviors may interact to negatively impact the social interactions these children engage in. These findings illustrated how important it is to address the social communication difficulties faced by children with LI during speech and language intervention. The intervention administered in the research project my thesis was associated did just that: provided intervention targeting emotional competence, which is critical during social interactions.

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

Purpose of the study

This study compared the abilities of children with and without learning disabilities (LD) to detect and interpret the specific emotions of *fear, sadness, surprise, anger, happiness,* and *disgust* from photographs of facial expressions. The authors examined whether age or sex made a difference and if LD had a significant effect on response time.

Method

Participants. Forty-eight children (12 boys aged 8 to 10; 12 boys aged 11 to 15; 12 girls aged 8 to 10; 12 girls aged 11 to 15) were recruited to the group with LD after having been formally identified by their school districts as having a specific learning disability absent from other overt disabilities of learning. For this study, children qualified for the LD label if their intellectual functioning was within the average to above average range, achievement levels compared to those of a lower age and achievement ability, and a discrepancy between

intellectual ability and achievement level was observed. For the control group, 46 typically developing children (12 boys aged 8 to 10; 12 boys aged 11 to 15; 12 girls aged 8 to 10; 12 girls aged 11 to 15) were randomly selected from three mainstream schools.

Procedures. Before testing, each child was individually trained on what to expect. Thirty-six black and white photographs (6 of each emotion with an equal number of male and female photographs per emotion) of facial expressions were presented to each child. Scenarios expressing specific emotions were read and the participants were asked to identify (out of two) which facial expression most appropriately fit the given scenario. During testing, each photograph was presented for 10 seconds and the child was asked to label which emotion was most appropriate; all responses were recorded but children were asked to select only one label as their definitive answer. For each of the emotions of *happiness, sadness, fear, anger, surprise* and *disgust*, response times and accuracy were recorded.

Results and Analysis

The results of this study indicated that *happiness* was the most correctly identified emotion, followed by *anger, surprise* and *sadness*. *Fear* and *disgust* were the least accurately identified emotions. Overall, the progression of facial expression interpretation skill was particularly influenced by LD categories. For children in every group, interpretations of *happiness, anger,* and *surprise* seemed to develop before the interpretations of *sadness, fear,* and *disgust*. Response times revealed that for all groups, *happiness* required the least amount of time to interpret. The highest response times were observed when participants identified *fear*, which suggested that this emotion was difficult to recognize in photographs of facial expressions.

Typically developing children were more accurate interpreters of the emotions of *surprise* and *disgust* than children with LD, although groups with LD were less accurate overall than participants without LD. No significant differences were found in age or gender categories. *Surprise* and *disgust* were most frequently confused with each other, with groups with LD mistaking the two more often than groups without LD. Response time differences indicated that children in groups with LD needed more time to interpret happiness and anger. Significant interactions were found for age group and learning classification.

Conclusions

This study found that children with LD were less proficient at interpreting emotions from facial expressions than were children without LD, particularly in the identification of later developing emotions such as *surprise* and *disgust*. These results indicated that no significant differences were found between the interpretive abilities of younger and older children, or between male and female children. These age-related findings were surprising at the time that this study was published; previous research had suggested that interpretive accuracy increased with age. Although males demonstrated a lower response time, their interpretive skills were less accurate than females.

Relevance to the current work

This study was important to my thesis in that it provided evidence supporting the argument that children with language difficulties have problems on emotion recognition tasks.

Examining the inclusionary and exclusionary requirements for participants in the Holder and Kirkpatrick (1991) study, many of the children who were examined may have also been selected to participate in a study of LI (e.g., average IQ scores, low scores on at least one test of language).

Jerome, A., Fujiki, M., Brinton, B., & James, S. (2002). Self-esteem in children with specific language impairment. *Journal of Speech Language Hearing and Research, 45*, 700-714. doi:10.1044/1092-4388(2002/056)

Purpose of the study

The authors of this study examined children with SLI and their typical peers across different age groups in order to determine if age or language ability affected perceptions of self-esteem or of their own competence.

Method

Participants. Eighty children were recruited to participate in this study. Forty of these students were placed in a group with SLI based on the following criteria: between 6-9 or 10-13 years old, nonverbal performance IQ above 80, a diagnosis of LI by the school speech-language pathologist, enrollment in a mainstream classroom while receiving pull-out speech and language services, performance of at least 1 *SD* below the mean on a formal language assessment, typical hearing, and no history of emotional or behavioral problems. The other 40 children were placed in a group based on their typical language abilities. These typical children were gender- and age-matched (within 7 months) to each of the children in the group with SLI.

Procedures. Self-reports that measured self-esteem were administered to each of the participants. The Self-Perception Profile for Children (SPPC; Harter, 1985) was administered to children in the older age group. The SPPC was a questionnaire that consisted of 36 items assessing the child's sense of self-adequacy in the areas of scholastic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct. In addition, the SPPC assessed the child's global sense of self-esteem. For children in the younger age group, the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSYC; Harter & Pike, 1984) was administered in order to assess cognitive and physical competence, and peer and maternal acceptance. The PSYC involved the presentation of a booklet of pictures and a verbalized description depicting different situations of children excelling or struggling with particular activities. The children were then asked to indicate which child they were most similar to and whether they were very alike or not very alike to that child.

Analysis and Results

Each item on the SPPC and PSYC was scored from 1 to 4 (1 = low perceived competence; 4 = high perceived competence). Scores were summed and averaged into raw scores for inferential analysis. No statistically significant differences were found for self-esteem between the younger group with SLI and their typical peers. However, significant group effects were evident in the older children in the areas of scholastic competence, social acceptance, and behavior conduct.

Conclusions

Although the younger children in this study may have been too young to adequately compare their competence levels to their peers, results suggested that children with SLI between 6 and 9 years old did not differ from their typical peers in how they viewed their own skills. Unfortunately, as these children matured, significant differences in self-perceptions of scholastic competence, social acceptance, and behavior were noted between children with SLI and their typical peers.

Relevance to the current work

This study was helpful in illustrating the negative impact that LI can have on the self-esteem and sense of self-worth in children who carry the LI label. The authors supported the argument that early intervention was critical because results of this study indicated that poor self-perceptions increased in severity with time and maturity.

Johnson-Laird, P. N., & Oatley, K. (1989). The language of emotions: An analysis of a semantic field. *Cognition and Emotion, 3*(2), 81-123.

Purpose of the work

The purpose of this paper was to provide a semantic analysis of English emotion-based words. The authors also compiled a reference list of 590 English words and categorized them according to the different basic emotional categories that each word was most closely associated with.

Summary

Emotions depend on both internal events and external events. According to communicative theory, there is a set of emotions which are so basic that they cannot be separated into more specific semantic categories. Those five basic categories are *happiness, sadness, anger, fear,* and *disgust* and they are universally accepted as discernible categories of direct experience. The only way an individual is able to fully comprehend the meaning of a basic emotion is to have personally experienced it. In addition, acquiring an emotional vocabulary requires awareness of both the events that caused those emotion-eliciting experiences and the consequences of such events.

The authors described seven main categories of semantic classification: generic emotions (e.g., feelings, emotions), basic emotions (e.g., which can be experienced without knowing the cause), emotional relations (e.g., which refer to the relation between the person who experiences the emotion and its object), caused emotions (e.g., which represent a feeling that has a cause known to the person who is experiencing it), causatives (e.g., verbs that express the relation between the cause of an emotion and the person who experiences it), emotional goals (e.g., emotions that motivate a person to characteristic behaviors designed to achieve a goal), and complex emotions (e.g., which have meanings that change depending on the particular context).

Conclusions

Emotion Words

Although it is possible for humans to experience basic emotions without any apparent reason, other emotions can be experienced that have an object, cause, goal, or multiple meanings. These other emotions combine basic emotions with personal knowledge and experiences to form new, context-dependent feelings.

Relevance to the current work

This article was referred to when the Emotion Coding Manual used in my thesis was being created. Although we added the category of *surprise,* the other five basic emotion categories of *happiness, sadness, anger, fear,* and *disgust* were supported by this work.

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.

Purpose of the study

The aim of this study was to examine the efficacy of a treatment program designed to improve the story-telling abilities of a child with LI and LD.

Method

Participants. One white male, *A* (8;8 years old), was selected as the participant for this study. At the time of the study, *A* was attending a second grade class for children with learning and/or language problems who did not qualify for special education services. *A* demonstrated an average full scale IQ (92), but standardized assessment revealed that he had difficulties with reading and applied math problems, and expressive and receptive language skills.

Procedures. The clinician elicited two oral and written stories from *A*, one week apart, in order to attempt to collect a reliable measure of *A*'s story-telling skills. The results of a criterion-referenced assessment indicated that *A* was writing and telling Level-2 stories. *A* participated in one-hour, bi-weekly intervention sessions for 12 weeks. At the beginning of each session, *A* was instructed about Level-3 story-grammar components (e.g., initiating events, attempts or actions, and consequence statements) using easily understandable examples (e.g., telling a story is like baking a cake: all ingredients need to be added in the right order or the final result will not be very good). Next, multiple-choice activities and fill-in-the-blank activities were used to help *A* learn to independently create coherent narratives. Once *A* had mastered Level-3 story components, Level-4 and Level-5 components were taught during intervention. At the completion of each level, two more spontaneous stories were elicited, one week apart.

Analysis and Results

In the 12 weeks of intervention, increases in the number of t-units, clauses per t-unit, and level of complexity were noted in *A*'s spontaneously elicited stories. At the end of treatment, *A* was producing Level-5 stories spontaneously. Follow-up language assessment scores revealed that *A* demonstrated little change in receptive and expressive language but reading comprehension improved slightly.

Conclusions

The authors concluded that the intervention was successful in improving overall story-telling ability. Although written stories were not targeted in therapy, improvements in oral stories generalized to written stories as well. These results suggested that oral and written story-telling abilities were interrelated. Post treatment interviews with teachers and parents confirmed that *A* demonstrated these improvements in other settings, indicating the possibility that intervention targets had generalized.

Relevance to the current work

This study was one of relatively few to document the effectiveness of an intervention program designed to specifically target social communication difficulties in school-aged children with LI. The promising results of this study encouraged future researchers to continue examining the efficacy of social communication intervention programs, much like the one used in my thesis research.

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

Purpose of the study

The purpose of this study was to compare the success, style and duration of attempts to access interactions made by children with SLI to their typically developing (TD) peers. Once access to conversation was granted, the authors examined and described how children with SLI participated in the interactions.

Method

Participants. Sixty-nine first and second graders were recruited to participate in this study. Participants were grouped into 23 triads consisting of one target child and two unfamiliar grade- and gender-matched play partners. Targets included 10 children identified with SLI (3 females, 7 males) and 13 TD children (6 females, 7 females). Participants with SLI were required to meet the following criteria: diagnosed with LI based on performance at least 1 *SD* below the mean on a standardized language assessment, currently enrolled in speech and language services through the school, and nonverbal IQ above 80. TD and play partners were randomly selected after having been identified by their teachers as demonstrating no academic, behavioral, or communication problems.

Procedures. Initially, the two play partners were seated on a carpet in an examination room and invited to play with some toys on their own. After 10 minutes, the target child was brought into the room and introduced to the two play partners. All three children were instructed to remain on the carpet during the activity. The examiner then retired to a separate area of the room, leaving the target child to attempt access to the interaction for 10 minutes. At the end of the 20 minutes of interaction, all TD targets and play partners were brought back to their classrooms; targets with SLI were then administered the CELF-III and TONI-II.

Analysis and Results

All sessions were video recorded and orthographically transcribed. The number of utterances produced by each member of the triads were calculated and used for coding. The examiners determined when each target child achieved access to the ongoing interaction and how much time it took to for access to be granted. Access was considered successfully achieved when the target child took a turn in the play (either verbal or nonverbal) and at least one partner acknowledged it by his or her next utterance or by watching the target's action. Once access was granted, the target children's behaviors were coded every 5 seconds as group play, individual play, or onlooking behavior.

All but one of the TD target children successfully accessed the conversation by making an initiation towards the play partners. Nine out of 13 TD children successfully accessed the interaction in less than one minute; only one child required more than three minutes. On the other hand, six of the 10 children with SLI first achieved access by responding to initiation requests made by their play partners. Four of these children never achieved access initiation; out of the six who did achieve access initiation, two children required more than three minutes. Children with SLI who performed better on expressive language assessments were able to achieve access more quickly than the children with SLI who performed more poorly on the same assessments. Once access was granted, children with SLI produced fewer utterances and were addressed less often than their TD peers.

Conclusions

Overall, the results of this study suggested that children with SLI tended to wait for an invitation to play from their peers rather than attempting to initiate access to the interaction on their own. The authors concluded that expressive language ability was the most predictive factor in successful conversational access. Even after children with SLI achieved access, they were more socially reticent than their typically developing peers and often remained on the periphery of the interaction.

Relevance to the current work

This study clearly illustrated just how difficult it can be for children with SLI to access and participate in ongoing interactions. Furthermore, expressive language deficits were highly predictive of successful conversational access. In my thesis, a social communication intervention was administered to children who demonstrated the same types of language deficits as the children in this study. The purpose of the intervention used in my study was to indirectly improve social functioning by targeting emotional competence.

McCabe, P. C., & 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

Purpose of the study

The purpose of this study was to examine the ratings that children with SLI and non-language impaired (NLI) preschoolers received on a measure of social competence. Differences

between the two groups in peer likeability, sociometric status, parent- and teacher-behavior ratings, emotional knowledge, and language development were determined.

Method

Participants. Thirty-six children (30 males, 1 female) with SLI and 35 NLI children (18 males, 17 females) between the ages of 3;10 and 5;7 years old were recruited to participate in this study. Children in the group with SLI were diagnosed with SLI by a certified speech-language pathologist. Children with additional disability classifications were excluded from the study.

Procedures. Prior to testing, the examiners spent time meeting and establishing rapport with each of the participants. Testing took place individually and was usually completed in a single session. The teacher and parent scales of the Social Skills Rating System (SSRS; Gresham & Elliot, 1990) were administered to assess social skills, responsibility, and problem behaviors. In addition, teachers completed the Teacher Ratings of Children's Behavior (Howe, 1987) in order to compare each child's behaviors to those of typical preschool children. Sociometric ratings were measured by asking each of the participants to sort pictures of each of their classmates into three boxes representing how much they liked to play with each child. Next, children were asked to pick out which of the other children in their class were their friends. To assess emotional expression identification, participants examined four cartoon faces conveying the expressions of *happy, sad, angry,* and *afraid* and were asked to expressively (verbally) and receptively (by pointing) identify each emotion. Next, emotional situation knowledge was assessed. The children observed 20 vignettes. In some vignettes, a stereotypical script was presented (e.g., the puppets acted in a way that most people would feel in that situation, such as feeling fear during a nightmare). In others, a nonstereotypical script was presented (e.g., the puppets acted in a way that was opposite of way the subject's parent had reported the subject would feel in that situation). Finally, the Test of Early Language Development—Second Edition TELD-2; Hresko, Reid, & Hammill, 1991) was administered at the end of the session to assess expressive and receptive language ability.

Analysis and Results

Responses to the sociometric ratings were combined to create a likeability measure for each of the participants. Each participant was assigned to "many," "one," or "no friends" groups depending on how many children selected them as friends on the mutual friendship task. These groups corresponded to the number of reciprocal friendships each target child had. The two emotion tasks were scored as follows: 2 points for correct choice, 1 point for valence agreement, and 0 points for incorrect choice. Results from the SSRS and Howe's teacher ratings indicated that children with SLI tended to demonstrate less assertiveness, socialization, self-control, and empathy. The two groups performed similarly on the emotional expression identification test but children with SLI performed more poorly than NLI children on the stereotyped emotional knowledge task. As expected, children with SLI performed significantly lower on the TELD-2 than the NLI group for both expressive and expressive language measures.

Conclusions

The children in the group with SLI appeared to demonstrate delayed competence in the areas of self-control, assertiveness, sociability, and emotional knowledge understanding. The authors concluded that children with SLI may, in certain circumstances, have difficulty ascertaining the appropriate emotion give a specific situation. Although children with SLI demonstrated deficits on expressive and receptive language measures and the NLI group did not, the main difference between the two groups appeared to be in semantics rather than syntax.

Relevance to the current work

This study provided a comprehensive look at the areas of social functioning and language ability in which children with LI tend to perform more poorly on than their typically developing peers. My thesis examined the effectiveness of an intervention that targeted some of these deficient areas, such as emotional expression identification and emotional knowledge understanding. The authors recommended that future research needs to further examine which aspects of expressive and receptive language specifically differentiate children with LI from their peers.

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

Purpose of the study

The aim of this study was to examine the conversational repair skills of school-aged children with PLI, SLI (without pragmatic difficulties), and typically developing children.

Method

Participants. Nine children between the ages of 7 and 11 years old participated in this study. The participants were divided into three groups: 3 children with LI who demonstrated significant pragmatic difficulties (PLI group), 3 children with LI who did not demonstrate pragmatic language difficulties (SLI group), and 3 children with typically developing language skills. Children in the groups with PLI and SLI were enrolled in a part-time language unit and received speech and language therapy. These children were identified with PLI or SLI by a certified speech-language pathologist based on their performance on formal and informal testing.

Procedures. Each participant engaged in one-on-one interactions with a speech-language pathologist involving referential communication tasks. The children were asked to draw a route on a map by following a series of 16 instructions provided by the clinician. The children were unable to see the clinician's map. The instructional script contained six directions with inadequate information (e.g., differing landmarks on the child's and clinician's maps, or inadequate instructions given by the clinician) in order to elicit conversational repair strategies. Children in the group with PLI then received six weekly intervention sessions targeting pragmatic language skills (particularly repair strategies). Children with SLI received six weekly intervention sessions that focused on language structure but not pragmatic language skills. Following the six weeks of intervention, all nine children were administered a follow-up map task.

Analysis and Results

Each of the sessions were video and audio recorded and transcribed. Responses were analyzed for each group according to the type of inadequacy in the instructional script. In Map 1, there were nine total opportunities (three for each group) to initiate repair due to the directions involving absent landmarks. Children without pragmatic language deficits (typical and group with SLI) initiated repair more often than children in the group with PLI. Repair responses were categorized as informative responses (IR), inadequately informative responses (IIR), or uninformative responses (UR). Overall, children in the mainstream group most closely replicated the intended routes indicated by the clinician's maps. However, children in the SLI group did make good attempts due the fact that they initiated repair strategies more often than any other group. The group with PLI produced poor map replications due to their tendency to not initiate repair. Following the intervention period, children in the group with SLI showed little change in initiation of repair. Children in the mainstream group actually produced more repair initiations during the second task. The children in the group with PLI showed a dramatic improvement by initiating repair in 78% of opportunities.

Conclusions

The mainstream group did not receive any intervention but still showed improvement between task 1 and task 2, likely due to familiarization with the task and the clinician. The fact that children in the group with SLI did not show any significant change following intervention suggested that there was no learning effect resulting from intervention that did not focus on pragmatic language skills. The large improvements observed in the group with PLI from pre-treatment to post-treatment narrowed the gap between their level of performance and the performance of their SLI and typical peers. These results suggested that conversational repair skills might potentially improve when specifically targeted in intervention.

Relevance to the current work

This study suggested that one reason why children with PLI struggle in social communication might be because they often do not ask for clarification when they experience communication breakdowns. This study provided evidence supporting the theory that social communication intervention has the potential to improve social competence. My thesis examined one such social communication intervention that was implemented in hopes of helping children with LI to generalize the social skills taught during treatment.

Redmond, S., & Rice, M. (1998). The socioemotional behaviors of children with SLI: Social adaptation or social deviance? *Journal of Speech, Language, and Hearing Research, 41*(3), 688-700.

Purpose of the study

The purpose of this study was to compare the sociobehavioral development of preschoolers with SLI to their typically developing peers according to teacher and parent ratings.

Method

Participants. Thirty-seven students were recruited to participate in this study. Seventeen children (6 females, 11 males; *M* age: 71.57 months old) were placed in the group with SLI because they met the following criteria: identified with LI by a certified speech-language pathologist; performance at least 1 *SD* below the mean on standardized language assessments; IQ of 85 or above; and no articulation or hearing difficulties. Twenty unaffected and age-matched children (AM; 10 females, 10 males; *M* age: 72 months old) demonstrating typical language skills were selected to form the control group.

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

Analysis and Results

Overall, children with SLI scored within normal limits on all syndrome scales on both teacher and parent reports, indicating that the group with SLI in this study was much more like their typical peers than the children used to standardize the rating scales. However, teachers but not parents rated children in the group with SLI as exhibiting more behavior problems than their peers. Surprisingly, the parents of children with SLI viewed their children as being generally well-behaved and socially appropriate, which contradicted most of the teacher reports.

Conclusions

Even though children with SLI were rated as well-behaved and socially appropriate by their parents did not necessarily indicate that parents were unaware of their children's social difficulties but rather that in certain social situations, children with SLI may have demonstrated social competence. Results of this study suggested that LI might exist relatively independently of underlying cognitive or socioemotional deficits.

Relevance to the current work

This study supported the argument that children with LI are perceived as having more behavioral problems than their peers. My thesis examined how effective a social communication intervention was in improving the emotional competence of three children with LI who also demonstrated pragmatic language difficulties. The hope was that the intervention would generalize to improved social functioning that was reflected in teacher and parent rating scales.

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

Purpose of the study

The purpose of this study was to determine if a program designed to target pragmatic language skills in the areas of conversation, internal responses, and qualitative and quantitative descriptions of objects could be taught successfully to children with learning disabilities.

Method

Participants. This study involved 20 students divided into two groups according to their academic classes. Participants attended a private school for children with learning disabilities. Each child had an average IQ but demonstrated a gap of at least one standard deviation between IQ and achievement or a gap of at least one standard deviation between the performance and verbal sections of the IQ assessment. Class one included six males and three females aging from 7;6 to 9;8 ($M = 8;1$); class two included five males and six females aging from 6;5 to 8;1 ($M = 7;3$).

Materials. Baseline measures were individually established for each of the 20 children using a criterion-referenced test. The first section, social skills, consisted of a spontaneous conversational sample, questions on starting, maintaining, and completing a conversation, asking for help, discriminating responses, and receptive and expressive identification of emotions. The second section, language use, included labeling and description of objects.

Procedures. Analysis of the baseline measures of both groups revealed three pragmatic areas in need of improvement: conversation (starting, maintaining, and ending), internal responses (receptive and expressive identification of emotions), and description of objects (qualitative and quantitative). These areas became the treatment goals. Each class of children received thirty-minute therapy sessions together for six weeks. Each of the three treatment goals were targeted for 10 minutes in every session. Conversation treatment included teaching the children that conversation contained four parts: a greeting, a statement or question, topic maintenance, and a farewell statement. Internal response treatment focused on the emotions of *happy, sad, mad, frustrated, surprised, embarrassed,* and *bored*. The students had to provide examples of when they had felt each emotion. In addition, the children were asked to identify emotions based on pictures of facial expressions. Treatment for describing objects consisted of teaching descriptions such as name, label, color, shape, size, function and material. Children were asked to describe everyday objects using the specified parameters.

Analysis and Results

Following treatment, the criterion-referenced test assessing language expression was given again under the same conditions as they were for the baseline measurements. The data from the study revealed that both classes demonstrated significant improvements in all three areas targeted during treatment. Class two appeared to improve in each area by a greater degree than class one.

Conclusions

This study showed that the treatment program implemented was successful in teaching pragmatic language skills to school-age children with learning disabilities. Although both classes showed significant improvements in each of the three targeted areas, class two demonstrated greater improvements. The authors indicated that these greater improvements were due to the fact that class two achieved lower baseline measures in the initial assessment than class one. The authors noted that additional areas of pragmatic language that were not targeted specifically in therapy also improved according to follow-up assessment data; however,

treated areas showed the greatest improvement. Teachers and parents of the students reported improved conversations (e.g., fewer disruptions, better topic maintenance, better descriptions of objects and events) following the six weeks of treatment. The authors noted two main limitations to the study. First, no control group was used as a comparison. Second, the classroom teachers may have targeted some of the same areas that were targeted in therapy. This could have caused improvements in the results that may not have been solely due to the success of the pragmatic language intervention.

Relevance to current work

This study provided evidence that pragmatic language disorders can be successfully targeted in intervention. In addition, weak areas not targeted in therapy may also show improvement. A portion of this study indicated that children with learning disabilities could be taught to recognize and express the emotions of *happy, sad, mad, frustrated, surprised, embarrassed,* and *bored*. My thesis took this study further and analyzed how much improvement was made in learning the emotions of *happiness, sadness, anger, fear,* and *disgust* when each emotion was specifically targeted in therapy.

Saarni, C. (1999). Skill 2: The ability to discern and understand others' emotions. In C. Kopp & S. Asher (Eds.), *The Development of Emotional Competence* (pp. 106-130). New York: Guilford Press.

Purpose of the work

The purpose of this chapter was to describe the typical development of children's emotional understanding and what was affected when this development was delayed.

Summary

Saarni described how at a very young age, babies learned how to interpret basic facial expression such as smiles or frowns. Young children have demonstrated the capability to discern the emotions and behaviors of others; they have also learned to use these behaviors as a reference point for determining their own personal emotional responses to different situations. Saarni explained how the first facial expressions recognized by children were positive ones; with time, children matured and learned to recognize more negative emotions such as *fear* or *anger*. The emotions that children tended to "see" most often during emotion recognition tasks frequently reflected the way children were viewed by their peers (e.g., children who most often identified "anger" were viewed as hostile).

As these children matured even further, it was discovered that they were learning to combine facial expressions and context clues in an attempt to infer the emotional experiences of others. Between the ages of five and six, they even began to understand that one person could feel more than one feeling at a time or that two people experiencing the same situation could feel different emotions. How children inferred the emotions of other people was revealed to be a reflection of their own experiences and what caused those experiences. When children examined the stability, locus, and controllability of different situations that others had found themselves in, they were able to infer how they too might have felt if in the same situation.

Conclusions

Emotion understanding is an element of emotional competence that begins to develop at an extremely young age (e.g., babies may start to reciprocate frowns or smiles as young as four months old). The situations that we personally experience help to define our individual perspectives of emotions so that as we mature, the way we define different emotions becomes more sophisticated. Once we learn to recognize our own feelings, we become better able to recognize and even infer the emotions of others.

Relevance to the current work

This chapter was very helpful in defining emotional competence. My thesis studied the emotion expression of young children with LI and used these emotion-based words as an indirect measure of emotional competence. I frequently referred to this chapter when trying to find sources or information that would be valuable to my research on emotion understanding.

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

Purpose of the work

The authors of this chapter reviewed the different aspects of emotional intelligence (perceiving, understanding, regulating and utilizing emotional information) and the competencies that they highlighted. The psychological phenomena influenced by emotional intelligence were then described.

Summary

Affective information plays a significant role in daily social experiences; emotions augment and enhance other cognitive abilities rather than interfere with them. Over the years, researchers have come to the conclusion that emotions are the primary source of motivation for most human actions (both positive and negative). The emotions that each of us experience internally help to shape our opinions, priorities, and actions. Our ability to thrive in the world is dependent on how well we are able to integrate our rational judgments with our emotional experiences. Therefore, our emotional intelligence is dependent on our abilities to "perceive and express emotions, to understand and use them, and to manage emotions so as to foster personal growth" (pp. 535).

Emotional intelligence is comprised of four main components: perceiving emotions, using emotions to facilitate thinking, understanding emotions, and managing emotions. Emotion perception involves a person's ability to recognize or interpret the emotions that are conveyed in faces, prosody, music, and cultural artifacts. Those who can more quickly perceive and express emotions are better able to respond to situations that arise in their environment. Using emotions to facilitate thinking involves the different mental sets that are created by our different emotions or moods. Certain mental sets are more or less appropriate for addressing different kinds of situations. Understanding emotions involves our ability to appreciate the intricate and complicated connections that different emotions have with each other. People can experience

multiple and contrasting emotions simultaneously and some emotions can give rise to others. In one way or another, all emotions are related to each other. Finally, emotion regulation is achievable only when the other three aspects of emotional intelligence are intact. When we understand how our emotions affect us individually, we can control or enhance our emotions to meet different needs. Emotionally intelligent individuals should be able to recognize their own emotions and use them as a guide towards coping with life in the most effective way possible.

In recent years, many novel methods for measuring emotional intelligence have been explored. Some methods have included self-report scales and tests that rely on tasks and exercises such as assessment batteries. Although a wide variety of these have been invented and implemented, no one method has emerged as the primary means for measuring emotional intelligence. In addition, research on the validity of these tests is still relatively new.

Conclusions

Since emotional intelligence has been introduced as a concept, a vast amount of research has emerged. Despite the huge array of empirical research on emotional intelligence that is currently available, it is important to recognize that a reliable measure has not yet been found. The authors suggested that less effort should be put towards researching what emotional intelligence is and more effort should be put towards finding a way to measure it. There is still a lot more to be learned about emotional intelligence and to this day, no concrete claims can be made about what it is and how it can be quantified.

Relevance to the current work

This chapter was very important to my thesis in that it described how emotional intelligence is currently viewed and what efforts have been made to measure it. In my thesis, an aspect of emotional competence was assessed using indirect measurement. The authors of this chapter provided justification for indirect measurement of emotional intelligence when reporting that no single, reliable method has yet emerged as a valid measure of 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

Purpose of the study

The purpose of this study was to examine the ability of school-aged children with LI to infer the emotional reactions of a character given a specific social situation.

Method

Participants. Eighty-six students with LI were recruited to participate in the study. Forty-three students were placed in the group with LI based on the following criteria: aged between 5-8 or 9-12 years old; nonverbal IQ above 80; diagnosed with LI by a certified speech-language pathologist and enrolled in speech and language services at the time of the study; performance at least 1 *SD* below the mean on a formal language assessment; typical hearing; and

unremarkable emotional behavior. The other 43 students demonstrated typical language development and skills and were gender-and age-matched (within 6 months) to each of the participants in the LI group.

Procedures. Each participant was presented with a series of 16 short stories that depicted a main character exposed to a situation designed to elicit the emotions of *anger, fear, happiness,* or *sadness* (four stories per emotion). The participants were tasked with identifying (either by verbalizing or pointing to a response card) which emotion the main character was likely to have experienced. Each of the stories was supported with pictures so that responses were not confounded by the presence or absence of LI. After every fourth story, the participants were asked to explain why the main character felt the emotion indicated. This was done to assess the child's understanding of the task and ability to reflect on personal experiences.

Analysis and Results

All sessions were video recorded and periodically reviewed to ensure administration consistency. The participants' accuracy of each emotion was analyzed on a five-point scale (0 = no correct identifications for a particular emotion; 4 = four correct identifications for a particular emotion, etc.). These results were analyzed to determine if emotion identification differed across subject group, age, gender, and emotion. Child responses to open-ended questions were transcribed and analyzed as inappropriate, retellings, restatements of the emotion or valence, statements of context for emotion, definitions of emotion, or descriptions of emotion. Children in both groups were most accurate in identifying situations eliciting *happiness,* followed by *sadness, fear,* and *anger.* Very few valence errors were noted in either group. Younger children were more likely than older children to confuse *fear* and *anger.* All the participants demonstrated adequate comprehension of the given scenarios but children with SLI did demonstrate more errors in identifying the intended emotional reactions for each situation. Children in both groups provided rather adequate responses to open-ended questions.

Conclusions

The results of this study suggested that children with LI were sometimes successful in talking about emotions, but that they tended to do so with more difficulty than their peers. The fact that children in the group with LI were less successful in accurately identifying the intended emotional reactions for each scenario was interesting since language deficits had been accounted for in the procedural design of the study. Moreover, results suggested that children with LI appeared to lack sophistication when talking about emotions which may have indicated that they had shallow personal experiences with emotions or did not fully appreciate the richness of conversation.

Relevance to the current work

This study demonstrated how much children with LI struggle with emotional competence. These data supported the argument that children with LI might benefit from social communication intervention specifically targeting emotional competence. My thesis involved the examination of one such social communication intervention.

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.

Purpose of the study

This study examined the emotion understanding of children with LI in comparison to their typically developing peers. The study utilized two tasks; the first involved the labeling of facial expressions and the second involved labeling the emotion expressed by music.

Method

Participants. Forty-three children with LI were divided into two groups: 5 to 8-years-old and 9 to 12-years-old. The younger group consisted of 11 boys (*M* age = 7;6; *SD* = 9 months) and 10 girls (*M* = 6;6; *SD* = 12 months). The older group consisted of 12 boys (*M* = 10;9; *SD* = 8 months) and 10 girls (*M* = 10;4; *SD* = 10 months). Students in the groups with LI were diagnosed with LI by the school speech-language pathologist and enrolled in speech services at the time of the study. Forty-three gender- and age-matched (within 6 months) children made up the control groups. All 86 children earned a nonverbal IQ score above 80 in order to rule out intellectual disability and passed a pure-tone hearing screening performed in their school. The children in each group had no diagnosis of emotional or behavioral disorders and spoke English as their first language.

Procedures. In the first study, twenty-four photographs of the facial expressions *happiness, sadness, anger, fear, disgust,* and *surprise* were shown to each of the participants. Seven response cards were available for each child to use in emotion identification; the cards pictorially represented the six emotion words as well as "I don't know." Each child was asked, "How does this person feel? Point to the card that shows how the person feels" (p. 134) and could respond by pointing to the response card or verbally naming the emotion. In the second study, 20-second musical passages were presented to the same children. The children were told to "point to how the music sounds" and were presented with the response cards for *happiness, sadness, fear, anger,* and "I don't know" used in the first study.

Analysis and Results

Each of the 6 emotions examined was used four times within the 24 photographs for the facial expression emotion identification task. Results indicated that children in both groups received similar scores for *happiness, anger, sadness,* and *fear* but the groups with LI did significantly worse than the typically developing groups on *disgust* and *surprise. Happiness, anger,* and *sadness* received more accurate responses than *fear, disgust,* and *surprise.* Some patterns of confusion included mixing up *fear* and *surprise,* misidentifying *fear* for *disgust* and *disgust* for *anger* (but not vice versa). The older groups more often misidentified *fear* for *surprise* than did the younger group but the overall, the older group was more accurate in identifying *surprise.*

In the second study, a consensus scoring system was used which looked at the proportion of responses in a comparison group that were in agreement. Children in typically developing groups demonstrated higher rates of agreement than did children in the LI groups; older groups had more agreement than younger groups. Musical selections rated as *happy* had the highest

ratings of agreement (*M* = .710) while *anger* (*M* = .410), *fear* (*M* = .451, and *sadness* (*M* = .499) were rated lower. *Anger* and *fear* were frequently confused for each other by children in both groups. Children with LI demonstrated particular difficulty identifying *anger*, often misidentifying it as *fear*.

Conclusions

The results of the facial expression emotion identification task performed in this study replicated the results of previous studies in that *fear* was difficult for children in both groups and children with LI were significantly less accurate in identifying *disgust* and *surprise*. Although the musical expression identification task may not have directly related to social communication, it was useful in testing the emotional understanding of children with LI in a way that significantly decreased the linguistic demands on the child. Less response agreement between children with LI than typical children may have indicated that children with LI recognized emotional expressions differently than typically developing children.

Relevance to the current work

This study provided further evidence that children with LI have difficulties with emotion understanding. In particular, when identifying the emotions displayed in photographs of facial expressions, children with LI struggled to identify the emotions of *fear, surprise,* and *disgust.* My thesis measured how effective a pragmatic language intervention was in improving the abilities of children with LI to recognize some of these emotions. The second study performed by these authors was exploratory and further research in this area is needed before any definite conclusions can be made about the ability of children with LI to identify the emotions conveyed by musical passages.

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

Purpose of the study

The aim of this study was to evaluate both the feasibility of implementing a narrative-based language intervention (NBLI) with school-aged children and the NBLI's potential as a stand-alone language intervention.

Method

Participants. Ten students aged 6;11 to 8;9 years old were recruited to participate in this study. Each of the participants scored at least 1.5 *SD* below the mean on a formal language assessment. All 10 students demonstrated an average IQ, typical hearing, socioemotional and neurological functioning. Most of these participants were enrolled in speech and language services through their school.

Procedures. Each child was required to produce two oral narratives based on two sets of pictures which conveyed the characters, setting, problems, and climax of a story. The ultimate resolution was omitted from the pictures. The goal of intervention for each child was to increase

the frequency of use of complex grammatical forms often found in stories. Intermediate goals were selected based on each child's narrative and conversational samples. In each NBLI session, the clinician read a story containing multiple examples of the targeted form with exaggerated inflection and emotional intensity. The child was asked to retell the story component-by-component with assistance from the clinician when necessary. Additional intervention activities included sentence imitation tasks, story generation tasks, and repeated retellings.

Analysis and Results

Examiners scored the samples using the DSS module of Computerized Profiling (Long, Fey, & Channell, 2002). Narratives were transcribed using SALT (Miller & Chapman, 2000). Follow-up outcomes for narratives (e.g., number of different words and narrative quality) syntactic structure (e.g., developmental sentence score), and measures that tapped working memory (e.g., recalling sentences and nonword repetition) were collected using post-treatment session data. Results indicated that eight of 10 children with SLI significantly improved their narrative quality but only one child increased the number of different words used during narrative samples. No significant change was observed in developmental sentence score. A slight but insignificant improvement was observed for sentence imitation scores.

Conclusions

Although most children improved in their overall narrative quality, there was no way of confirming that improvements were the result of NBLI. However, the fact that almost all of the participants' posttest scores were approximately equal to the mean estimated scores for typically developing children suggested that NBLI may be a feasible intervention option for children with SLI in the future.

Relevance to the current work

This study demonstrated how children with LI often have difficulties using cohesive devices during narratives. Lack of cohesion makes communication with these children very difficult. The children who participated in my research project had all been identified with LI. Although the use of cohesive devices was not specifically targeted in my research, it was very possible that the participants of my study demonstrated difficulty with cohesion. The design of this study was exploratory and nonexperimental, so no conclusions could be drawn about the efficacy of NBLI. Many adaptations and much more research evaluating the efficacy of NBLI will be necessary in order to establish the true feasibility of NBLI as a stand-alone intervention for children with SLI.

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: 10.1080/02699200802212470

Purpose of the study

The purpose of this study was to examine the social knowledge of school-aged children with LI in comparison to their typically developing peers.

Method

Participants. Twenty-four children (aged 8;1 – 12;2 years old) attending elementary school participated in this study. None of the participants demonstrated any cognitive, behavioral, attentional, or hearing deficits and all were enrolled in mainstream educational classrooms. Twelve students (seven males and five females) were recruited to the group with LI upon meeting the following standards: enrolled in speech and language services at the time of the study; composite score at least 1 *SD* below the mean on the CELF-4; nonverbal IQ of at least 8. The other 12 students were placed in the typically developing (TD) group and demonstrated no language or learning difficulties in addition to typical cognitive, behavioral, attentional, and hearing function.

Procedures. Each child was read 12 hypothetical peer conflict scenarios. The participants were asked open-ended questions (e.g., What are all the things that you could say or do here? What would you say or do if this really happened to you?) and multiple choice questions (e.g., The child was asked, "What is the best thing to say or do here?" and provided with five possible choices). The parent form of the SSRS was completed by each of the participants' mothers to assess the frequency of specific social skills and problem behaviors. Teachers of each of the participants completed the teacher form of the SSRS in order to identify the presence and severity of social difficulties while entering interactions and responding to peer provocation.

Analysis and Results

Open-ended responses produced during the hypothetical conflict task were transcribed and entered into language transcription software (Miller & Chapman, 2005). Responses to forced-choice questions were recorded and tallied for accuracy. Responses to the SSRS parent form were rated on a 3-point scale (e.g., never, sometimes, and often). Teacher responses to the SSRS were scored on a 5-point scale (e.g., 1 = never, 2 = rarely, 3 = sometimes, 4 = usually, and 5 = almost always). Results of the hypothetical peer conflict task indicated that children with LI used fewer conflict resolution strategies than their peers although the total number of strategies produced by children in each group did not differ. While none of the TD children selected hostile strategies in the multiple choice task, six out of 12 participants with LI selected at least one. No differences were found between groups in parental perceptions of social skills and problem behaviors although teachers reported that children with LI had lower social skills and more problem behaviors.

Conclusions

This study suggested that children with LI were less likely to select prosocial strategies when resolving conflicts with their peers than were typically developing children. The finding that teacher and parent ratings of social skills and problem behaviors were in disagreement was similar to results from previous studies. However, since teachers and parents view children interacting in different settings, it was possible that both ratings were accurate in particular situations. The results suggested that children with LI might not have been receiving enough support to meet their social communication needs.

Relevance to the current work

This study was useful in illustrating how differently children with LI react in conflict situations than their typically developing peers. These social communication differences affect the way in which conflicts are resolved as well as the potential to perpetuate conflict. The findings from this study supported the argument that social communication intervention is critical for children who are perceived as having social skills or behavior problems. All the children who participated in my thesis research demonstrated social communication difficulties. By targeting emotional competence, we hoped that the participants would generalize the ability to understand, perceive, and regulate emotions to conflict situations.

Appendix B

Accuracy Percentage of Emotion-Based Words Produced Per Session

<u>Participant 1</u>

Session No.	Happiness	Sadness	Anger	Fear	Surprise	Disgust
Baseline 1	33 (3)	22 (9)	---	---	---	---
Baseline 2	100 (3)	43 (7)	50 (2)	---	---	---
Baseline 3	100 (3)	50 (6)	33 (3)	---	---	---
1	100 (8)	80 (5)	60 (10)	0 (1)	---	---
2	40 (5)	67 (3)	100 (1)	100 (1)	---	---
3	86 (7)	100 (1)	100 (2)	---	---	---
4	100 (7)	50 (2)	---	100 (5)	---	---
5	100 (9)	67 (3)	100 (5)	100 (1)	---	---
6	100 (1)	75 (4)	100 (2)	---	---	---
7	100 (8)	100 (2)	100 (3)	100 (1)	100 (1)	---
8	100 (2)	---	33 (3)	100 (1)	---	---
9	90 (10)	100 (9)	100 (2)	---	100 (4)	---
10	100 (9)	33 (3)	100 (8)	---	---	---
11	90 (8)	100 (1)	80 (5)	---	100 (1)	---
12	100 (3)	50 (4)	67 (3)	100 (4)	---	---
13	100 (8)	100 (1)	100 (1)	0 (1)	100 (1)	---
14	100 (3)	---	100 (2)	---	100 (3)	---
15	100 (12)	100 (2)	100 (1)	100 (2)	100 (3)	---
16	67 (6)	100 (6)	100 (10)	---	100 (3)	---
17	100 (8)	---	---	---	100 (3)	---
18	67 (3)	100 (7)	33 (6)	---	100 (1)	---
19	100 (9)	100 (5)	100 (5)	---	100 (4)	---
20	100 (3)	100 (2)	100 (1)	---	---	---
Follow-up 1	100 (3)	100 (3)	50 (4)	---	---	---
Follow-up 2	50 (6)	50 (2)	67 (3)	---	0 (1)	---
Follow-up 3	100 (3)	100 (3)	50 (4)	---	---	---

Participant 2

Session No.	Happiness	Sadness	Anger	Fear	Surprise	Disgust
Baseline 1	60 (5)	25 (4)	0 (2)	---	---	---
Baseline 2	100 (3)	29 (7)	---	50 (2)	---	---
Baseline 3	100 (1)	27 (11)	---	---	---	---
Baseline 4	100 (1)	27 (11)	---	---	---	---
1	50 (2)	20 (10)	67 (3)	0 (2)	---	---
2	83 (12)	57 (7)	100 (3)	33 (3)	100 (1)	---
3	100 (1)	57 (14)	100 (2)	---	100 (2)	---
4	40 (10)	44 (9)	75 (4)	100 (1)	50 (2)	---
5	100 (8)	33 (3)	100 (1)	---	---	---
6	83 (6)	100 (1)	---	88 (8)	---	---
7	94 (17)	50 (4)	100 (2)	---	---	100 (6)
8	56 (9)	80 (5)	100 (3)	---	---	---
9	86 (7)	100 (1)	100 93)	---	---	---
10	0 (1)	0 (1)	---	---	0 (2)	---
11	46 (13)	92 (13)	83 (6)	100 (3)	100 (2)	---
12	44 (9)	33 (3)	100 (1)	---	100 (3)	---
13	56 (9)	100 (1)	100 (2)	---	---	---
14	57 (21)	70 (20)	67 (3)	100 (1)	100 (4)	---
15	11 (9)	100 (2)	100 (6)	83 (6)	---	---
16	100 (15)	---	100 (1)	---	---	---
17	70 (20)	100 (13)	78 (18)	---	---	---
18	50 (4)	100 (4)	100 (3)	---	---	---
19	80 (5)	86 (7)	50 (2)	---	---	---
20	67 (12)	50 (10)	75 (4)	---	100 (2)	---
Follow-up 1	50 (6)	40 (5)	0 (1)	---	---	---
Follow-up 2	67 (3)	22 (9)	---	---	---	---
Follow-up 3	50 (2)	20 (10)	---	---	---	---

Participant 3

Session No.	Happiness	Sadness	Anger	Fear	Surprise	Disgust
Baseline 1	25 (8)	14 (7)	---	100 (2)	---	---
Baseline 2	43 (7)	20 (5)	---	---	---	---
Baseline 3	60 (5)	29 (7)	---	---	---	---
Baseline 4	100 (3)	38 (8)	---	---	---	---
Baseline 5	60 (5)	40 (5)	---	33 (3)	---	---
1	78 (9)	67 (6)	100 (8)	---	100 (2)	---
2	100 (13)	86 (7)	88 (16)	---	---	---
3	83 (6)	40 (5)	90 (10)	---	---	---
4	100 (1)	100 (2)	75 (4)	---	---	---
5	100 (4)	50 (2)	100 (6)	100 (1)	---	---
6	100 (2)	100 (4)	100 (5)	---	---	---
7	80 (5)	100 (4)	100 (5)	---	---	---
8	97 (32)	100 (2)	100 (5)	---	---	100 (1)
9	94 (18)	---	100 (1)	---	---	100 (3)
10	100 (5)	100 (8)	100 (12)	---	100 (1)	---
11	67 (3)	100 (1)	100 (3)	100 (2)	---	---
12	67 (3)	100 (2)	100 (3)	---	100 (4)	---
13	---	100 (1)	100 (7)	---	---	---
14	100 (2)	100 (3)	100 (2)	100 (3)	---	---
15	71 (7)	100 (1)	100 (5)	100 (3)	---	---
16	100 (5)	---	100 (3)	---	100 (2)	---
17	70 (10)	0 (1)	100 (3)	---	---	---
18	100 (2)	---	100 (5)	---	0 (2)	---
19	100 (17)	0 (1)	50 (2)	---	100 (2)	---
20	64 (11)	100 (5)	100 (3)	---	67 (3)	---
Follow-up 1	75 (4)	50 (4)	100 (1)	67 (3)	---	---
Follow-up 2	100 (3)	67 (3)	100 (1)	100 (2)	---	---
Follow-up 3	75 (4)	40 (5)	100 (1)	33 (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 wants to do? What is he planning? How would he feel to be alone? How would you feel?

4. page four: Where is the frog? How does he feel? What do you think he might do?

5. page five: What is the frog doing? (Wow! He has a long tongue! He is sticking it out. That surprised me!) Why is he doing that?

6. page six: What does the frog have? Why did he catch the bug? What is he going to do with that bug? Do you think the frog likes to eat bugs? Would you like to eat a bug? (Talk about "disgusting" and feeling disgusted). Different people like different foods. Give some examples. Review previous lunch bag activity.

7. page seven: Look at the frog. How does he feel? (surprised—maybe a little scared). What has happened? What happened to that bug?…

8. page eight: The bug is a big hornet (bee). The bug is flying away. How did the bee get out of the frog's mouth? What did the bee do to the frog? How does the frog feel? Did you every eat anything that hurt your tongue? How did you feel?

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

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

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

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

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

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

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

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

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

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

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

20. page twenty-one: What is the lady doing (getting a bottle our 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 thinks 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:
Examiner:

Emotion-Based Word	Time of Production	Type of Production	Category of Emotional State	Accurate vs. Inaccurate/ Correct Valence vs. Incorrect Valence

Guidelines for Each Coding Category

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

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): For the purpose of this study, only emotion words produced after phonological cues (e.g., the clinician says "/s/" in order to elicit "sad") are coded as cued productions. Semantic or gestural cues are not coded as cued productions.

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.

Category of Emotional State – 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)
Surprise (Su)
Anger (A)
Fear (F)
Disgust (D)
Contempt (C)
Sadness (Sa)

Accurate vs. Inaccurate/Correct Valence vs. Incorrect Valence – The production is considered accurate 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 word the clinician is attempted to elicit are considered inaccurate.

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).

+   = accurate production, correct valence
-       = inaccurate production, incorrect valence
-V   = inaccurate production, correct valence

Special Coding Considerations

Code the following:

- Specific names for emotions (e.g., sadness, happiness, anger, etc.)
- Adjective forms of emotion words (e.g., excited, scared, annoyed, etc.)
- The verbs *like, love* and *hate*
- Words describing facial expressions associated with specific emotions (e.g., "She feels *frowny*" Or "That's a *scary* face")

Do not code the following:

- Adjectives describing actions or appearances (e.g., funny, cute, silly, weird, etc.)
- Expletives and interjections (e.g., Whoa! Hey! Dang it, etc.)
- Verb forms of emotion words (e.g., to scare, to hurt, etc.)

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, only code the first two productions.

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 that 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. You 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.

I have read, understand, and received a copy of the above consent and of my own free 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.

_____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.

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

Signature_____   Date_____

Printed name_____