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A Social Communication Intervention to Facilitate Emotion Word Learning in

School-Age Children with Developmental Language Disorders

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

Master of Science

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ABSTRACT

A Social Communication Intervention to Facilitate Emotion Word Learning in School-Age
Children with Developmental Language Disorders

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Master of Science

Historically, social communication approaches to intervention for children with developmental language disorders (DLD) have been limited. However, several recent studies have shown that these interventions can produce positive changes in children with DLD. One weakness that children with DLD demonstrate is the production of words to express emotion. This thesis evaluates the effectiveness of a story-based social communication intervention to increase the production of emotion words in three elementary school-age children diagnosed with DLD. Data were collected and analyzed in pretreatment baseline sessions, throughout the intervention, and in posttreatment follow-up data for the seven target emotion word categories of *happiness, surprise, fear, anger, sadness*, *disgust,* and *contempt*. The specific targeted emotion word categories were determined based on individual participant's limited proficiency during baseline sessions. Thus, the emotions targeted were unique to each child. Intervention consisted of 40 intervention sessions using a combination of storybook therapeutic strategies (e.g., story enactment, story sharing, and modeling by the clinician to help increase the child's emotion understanding) as well as emotion recognition and emotion inferencing tasks. Each participant's data were analyzed and presented in figures. The percentage of non-overlapping data (PND) was used in data analysis, quantifying how successful the intervention was for each of the targeted emotions. While the target emotion word categories varied between participants, all of the children showed improvement in the targeted emotions. While the intervention was more effective for some children than others, all increased in their ability to use the target emotion words more accurately as a result of participating in intervention.

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I am also grateful to my family, especially to my parents Richard and Susan Seeley, who have supported me in my pursuit of an education. To my brother Joseph Seeley and sister-in-law Margaret Seeley who set the example of learning and encouraged me in my educational and professional pursuits. Finally, to my husband Samuel Avila who encouraged me, supported me, and helped me with the visual presentation of the data in this thesis. Thank you, I could not have done this without you Sam.

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Lastly, I am thankful for all the participants of this study, their families, and the clinicians who provided me with the opportunity to better understand and evaluate the impact of social communication intervention on the lives of children with developmental language disorders.

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DESCRIPTION OF THESIS STRUCTURE

This thesis, *A Social Communication Intervention to Facilitate Emotion Word Learning in School-Age Children with Developmental Language Disorders*, is written in a hybrid format combining the traditional thesis requirements with the thesis requirements for the Brigham Young University McKay School of Education. It contains each participant's linguistic profile, data from intervention, and subsequent features. The data provided in this thesis were drawn from a larger research study. The following appendices are included: Appendix A contains an annotated bibliography, Appendix B includes the emotion word coding manual, and Appendix C holds a copy of the research participation consent forms signed by all of the participants' parents.

Introduction

Recent research findings have indicated that, in addition to difficulties with language production and comprehension (Leonard, 2014), children with developmental language disorders (DLD) have significant deficits in aspects of social and emotional learning. However, despite these problems relatively few interventions for children with DLD target social and emotional knowledge. The current study analyzes the effectiveness of using an individualized storybook social communication intervention to concurrently focus on vocabulary and social and emotional learning through the teaching of emotion words to school-age children with DLD.

DLD and Social Communication

Social communication is, by definition, using language in social settings to communicate and connect with peers. It can also be defined as using "language in interpersonally appropriate ways to influence people and interpret events" (Olswang, Coggins, & Timler, 2001, p. 53). While it is often confused with pragmatics, it is far more extensive, including additional social cognitive behaviors such as emotional intelligence and theory of mind. Adams et al. (2012) provided a useful framework for approaching social communication by conceptualizing it as the interaction of language processing, pragmatics, and social understanding/social interaction. Brinton and Fujiki (2017a) applied the same basic organization, but substituted the term social and emotional learning (SEL)[1] for the third area. As Adams et al. (2012) notes, most social communication problems arise from "a limitation in the development of social, cognitive, and

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[1] The Collaborative for Academic, Social, and Emotional Learning (CASEL) defines SEL as the process through which children and adults "understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions" (CASEL, 2013, p. 4).

language skills necessary for contextually appropriate, meaningful, and effective interpersonal communication" (Adams et al., p.182).

There is considerable evidence that children with DLD struggle with various components of social communication. In addition to the well documented language processing problems these children experience, difficulties in pragmatics and social and emotional learning include participating in conversation (Adams et al., 2012; Brinton, Robinson, & Fujiki, 2004; Richardson & Klecan-Aker, 2000), using negotiation skills (Brinton, Fujiki, & McKee, 1998), managing conversational topic (Brinton, Fujiki, & Powell, 1997), working cooperatively with peers (Brinton, Fujiki, Montague, & Hanton, 2000), dissembling emotions in social situations (Brinton, Fujiki, Quist Hurst, Jones, & Spackman, 2015; Brinton, Spackman, Fujiki, & Ricks, 2007), inferring emotions experienced by others (Ford & Milosky, 2003, 2008; Spackman, Fujiki, & Brinton, 2006), and providing conversational repair (Brinton, Fujiki, & Sonnenberg, 1988; Merrison & Merrison, 2005). The above list is not comprehensive. There are other specific social communication skills that children with DLD struggle with and all of them are tied to an overarching difficulty with social and emotional learning.

DLD and Social Communication Intervention

Given the range of social communication deficits in children with DLD, the overall lack of efficacious interventions targeting social and emotional concepts is concerning. Illustrative of this problem are the results of a recent review conducted by an ad hoc committee of the American Speech-Language and Hearing Association. The committee conducted a review of the literature published from 1975 to 2008, examining social communication intervention studies conducted on children with DLD between the ages of 5 and 11 years. It was found that there was a lack of research articles that met the most stringent level of evaluation criteria for the study,

making it difficult to assess the effectiveness of intervention. The eight articles that met the evaluation criteria for inclusion focused on a variety of behaviors, including topic management skills, narrative production, and communicative repairs. However, all of the studies were considered to be exploratory in nature. The committee concluded that there was a serious need for more efficacy studies examining social communication interventions (Gerber, Brice, Capone, Fujiki, & Timler, 2012).

It is important to note that since the 2008 review, there have been several intervention studies conducted with children with language impairment (e.g., Fujiki, Brinton, McCleave, Anderson, & Chamberlain, 2013). Perhaps the most notable was a randomized control trial conducted by Adams et al. (2012) to assess the effectiveness of intensive speech and language therapy services in improving conversational and social interaction skills for school-age children with persistent pragmatic, social, and emotional needs. The two-arm parallel-group randomized-controlled trial was carried out with 88 school-age children with pragmatic communication deficits. These children were randomly assigned to a social communication intervention program and then treatment-as-usual group in a 2:1 ratio. The results of the study indicated that social communication intervention programs can be effective in improving conversational quality in 6 to 11-year-olds with significant pragmatic and social communication needs. This intervention was also perceived by parents and teachers as effective in improving some functional pragmatic and social communication skills at home and/or in school (Adams et al., 2012).

As illustrated, the literature concerning social communication interventions for children with DLD is growing. However, there continues to be a need for additional interventions to treat the communication problems of these children using a framework that addresses not only their

language processing needs, but also their pragmatic and SEL limitations as well. These interventions should enable them to be fully engaged in all peer, teacher, and family relationships.

DLD, Emotion Words, and Social Communication Intervention

This study examines the use of an individualized storybook social communication intervention program to target aspects of social communication in children with DLD by combining vocabulary and emotion targets, in the form of emotion words.

Children with larger vocabulary have both social and academic advantages. For example, preschool-age children with larger vocabularies are preferred by their peers (Gertner, Rice, & Hadley, 1994) and there is a positive correlation between vocabulary size and reading comprehension (Clarke, Snowling, Truelove, & Hulme, 2010; Pearson, Hiebert, & Kamil, 2007). Children with DLD often have difficulties learning words resulting in smaller vocabularies and limited conceptual representations of word meanings. Thus, emotion word learning would be a viable target for intervention because as the child is learning vocabulary they are also being explicitly taught to recognize and express the targeted emotion that the word represents. This instruction should enable the child to both identify the said emotion and appropriately use the word to express their own emotions in a broader context. This teaching will be scaffolded through the use of preselected storybooks and activities that will utilize scripts, story reenactment, simplifying language structure and gestures to create a meaningful context for emotion word learning (Brinton & Fujiki, 2017b).

The goal of the current research project was to determine if the number of and accuracy of emotion word production in children with DLD can be improved through individualized storybook social communication intervention. Valence errors were also noted (e.g., a negative

emotion word such as sad was used for a positive emotion word such as happy). The following research questions were addressed:

1. Do the participants' abilities to produce emotion words increase over 40 sessions of intervention?

2. Do the participants' valence errors decrease over the course of two academic semesters of intervention?

Method

The current study is part of a larger social communication intervention project that was conducted at an elementary school in northern Utah. Data for this study come from the first two semesters the participants were enrolled in this social communication intervention.

Participants

Three male children were included in this study. Participants were between the ages of 5;7 (years; months) and 10;2 at the beginning of their participation in the study. These participants were identified with DLD based on current enrollment in speech and language intervention as well as by existing testing by the school speech-language pathologist (SLP). The researchers also administered Clinical Evaluation of Language Fundamentals-5th Edition (CELF-5; Wiig, Semel, & Secord, 2013) and the Children's Communication Checklist-2 (CCC-2; Bishop, 2003), and scores from these tests supported the diagnosis of DLD. Individuals with diagnoses of autism, intellectual disability, and other disabilities were not included in the study in order to reduce confounding variables. All participants completed and passed a pure tone 20 dB HL hearing screening. The participants all attended the same elementary school and were recommended for the current study by the school SLP. The guardians of each of the participants completed informed consent documentation prior to participating in the social communication

intervention program. Eligibility testing was completed with each participant prior to beginning their first semester of the social communication intervention. Test results for each participant are included in Table 1.

Table 1

Participants' Children's Communication Checklist-2[1] (CCC-2) and Clinical Evaluation of Language Fundamentals-5(CELF-5) Percentile Scores[2]

Instruments	Participants		
	AA	BB	CC
CCC-2 Subtests Percentiles			
Speech	1	0.4	0.1
Syntax	<1	16	0.1
Semantics	6	5	5
Coherence	2	9	37
Initiation	10	50	2
Scripted Language	3	25	50
Context	3	9	16
Nonverbal Communication	1	9	5
Social Relations	<1	5	2
Interests	20	25	50
GCC[3] Percentile	<1	6	3
SIDI[4] Scaled Score	7	9	7
CELF-5			
Core Language Score Percentile	8	9	2

Note. [1]Children's Communication Checklist-2 (CCC-2; Bishop, 2003). [2]Clinical Evaluation of Language Fundamentals-5 (CELF-5; Wiig et al. 2013). [3]General Communication Composite. [4]Social Interaction Difference Index.

AA. AA began participating in this social communication intervention when he was 5;7 in January, 2016. The semesters analyzed for this study were his first and second semesters enrolled in the intervention. AA was a monolingual English-speaking Caucasian male with an unremarkable birth/developmental history. AA's classroom teacher completed the CCC-2. AA received a score of 27 for is General Communication Composite (GCC) score on the CCC-2,

placing him in less than the first percentile for his age group in overall communicative strength. AA had notable difficulty with the speech, syntax, semantic, coherence, stereotyped, use of context, nonverbal, social and interests subtests of the CCC-2. AA's produced a Core Language Score (CLS) on the CELF-5 of 79 (8th percentile), a Receptive Language Index (RLI) standard score of 80 (9th percentile), and an Expressive Language Index (ELI) standard score of 78 (7th percentile). AA's teacher also completed the *Teacher Behavior Rating Scale* (TBRS; Hart & Robinson, 1996). AA's scores indicated that he engaged in very little peer play and struggled to integrate himself in play activities in addition to other speech difficulties. Due to these deficits, AA had difficulty interacting effectively in a classroom setting and was thus qualified for participation in this intervention program.

BB. BB was enrolled in this social communication intervention at age 9;11. The semesters studied were his first and second semesters in the intervention. BB was a monolingual English-speaking Caucasian male. He was diagnosed with Specific Learning Disability (SLD) at age 9 and qualified for special education services for reading and math. At the time of this study, BB was enrolled in a mainstream 4th grade class and was receiving speech-language intervention, focusing on articulation, resonance, and language skills, and pull-out resource services in math and reading for up to three hours a week.

BB was tested with the Woodcock-Johnson III Tests of Cognitive Abilities (WJ-III) in 2015 producing an overall intellectual ability standard score of 85 (Woodcock, McGrew, & Mather, 2001). BB qualified for speech and language services in the schools with a diagnosis of a moderate language disorder and moderate to severe articulation disorder. On the teacher completed CCC-2, BB received a GCC score of 77 placing him in the 6th percentile for his age. He had particular difficulty with the speech, semantics, coherence, context, nonverbal

communication, and social relations subtests. BB's CLS on the CELF-5 was 80 (9th percentile rank). His RLI and ELI standard scores were 80 (9th percentile) and 78 (7th percentile), respectively. His teacher reported through the TBRS that BB was a passive child in the classroom and had few friends.

The clinician stated that BB's communication, although often passive, had improved and matured throughout the intervention that he had previously received. However, he continued to have difficulties initiating conversation with adults and peers. BB's conversations were often off topic and he used laughter or conversational fillers to compensate for communication breakdowns that occurred due to his deficits in speech and language. The clinician also reported that BB struggled following directions and required several repetitions of instructions before he could complete a task. BB's frequent speech sound errors also made it difficult for his communication partners to understand him and may have contributed to his passivity and lack of confidence during social interactions.

CC. CC began participating in the intervention program at age 10;2. His first and second semesters enrolled in the intervention are analyzed in this study. CC was a monolingual English-speaking Caucasian male. He qualified for special education services at age 6;6 with a diagnosis of SLD and deficits in reading, writing, and math. At the time of this study CC was enrolled in a mainstream 4th grade class and enrolled in resource services. He was receiving speech and language intervention for articulation and language problems.

In 2015, CC was given the WJ-IV COG, producing a general intellectual ability standard score was 83 (Schrank, McGrew, Mather, Wendling, & LaForte, 2014). His scores on the WJ-JV ACH were also low: oral vocabulary (71), reading fluency (82), basic reading skills (79) and reading comprehension (72). According to his school evaluation summary report, CC had

difficulty producing the /r/ phoneme and /r/ blends in spontaneous speech and also had difficulty using irregular past tense verbs and irregular plurals. On the teacher completed CCC-2 he produced a total GCC score of 72, placing him in the 3rd percentile for his age. CC had difficulties with the following subtests: speech, syntax, semantics, initiation, nonverbal communication, and social relations. His CLS on the CELF-5 was a standard score of 70 (2nd percentile rank), and his RLI and ELI standard scores were 70 (2nd percentile rank) and 71 (3rd percentile rank), respectively. CC's teacher completed the TBRS, which indicated that CC most often played by himself and has difficulty talking and playing with peers.

The clinician reported that CC's conversations were characterized by off-topic comments and one-sided conversation. He would fully participate if the conversation topic was of interest to him however, if an uninteresting topic was introduced by someone else he struggled to engage, show interest, and respond appropriately. The school SLP stated that CC had little to no ability to read social cues, struggled with theory of mind, and had difficulty appreciating the opinions of others. CC often needed assistance from the clinician to interpret social cues within the context of pictures and stories to enable him to make social inferences. This inability to make social inferences was often problematic during conversations and other interactions with peers. According to his teacher, CC was impulsive and struggled to stay on task and monitor his own negative behavior. To help CC, his teacher often assigned other students to act as aides in the classroom to help him with assignments and help monitor his behavior during activities. CC's mother also reported similar difficulties at home, including short attention span, overstimulation during play, overreaction to problems, and an overall lack of self-control.

Procedures

Each portion of the intervention process (baseline, intervention, and follow-up sessions) was administered by graduate student clinicians from Brigham Young University (BYU) under the supervision of the school SLP. Intervention sessions occurred twice per week in two 20-minute segments for 10 weeks per academic semester. The pull-out service delivery model was implemented to deliver services. Data came from each participant's first and second semesters of participation in the ongoing social communication intervention program. Each of the participants in the study had two graduate student clinicians over the course of intervention program, one clinician for the first 20 sessions and a different clinician for the last 20 sessions. BB and CC had the same two graduate student clinicians for intervention whereas; AA had one of the same clinicians as BB and CC and one new clinician.

Baseline. The current study was completed using a multiple case study design. Before beginning intervention, each of the participants completed three to six baseline measures. Participants BB and CC completed six baseline measures each whereas AA, due to school scheduling limitations, was only able to complete three baseline measures. After a stable baseline was established, intervention was initiated. The baseline tasks used in this study were picture description tasks, recognition of emotion in facial expressions in pictures tasks, recognition of emotional state of characters in stories tasks, and for two of the three participants, the Edmonton story generation tasks (Schneider, Dubé, & Hayward, 2005). The graduate student administering the baseline tasks did not provide any cueing or modeling for the child. In some cases, however, the child was presented with the stimulus and asked a specific question to which they provided a verbal answer.

Intervention. The social communication intervention program was implemented in the final semester of each academic school year, with the exception of AA who participated in the intervention program during one final semester and one first semester of the academic school year. Participants participated in two semesters of intervention (20 weeks) composed of 20 individual sessions each, totaling 40 intervention sessions. Each session was approximately 20 minutes long. The individual intervention sessions activities were divided into four sections.

The first section consisted of a storybook reading activity. The clinician presented a scripted story to the child utilizing children's books and focusing on the emotions of the characters in the story. The story script was flexible, allowing for the participants to provide multiple responses in regard to emotion word production. Children who were literate were encouraged, but not required, to read along in the story. During various events in each story, the clinician and child would discuss the emotions of each character. This was a time when the clinician would introduce new emotion words and provide feedback regarding emotion words that the child was using incorrectly. An example of a story used during this intervention was *Llama Llama Red Pajama,* written by Anna Dewdney. During the story reading activity, the clinician and child would read *Llama Llama Red Pajama* together with the clinician asking questions from a prepared script to ensure that each child received the same information from the story. After reading each page, the clinician would ask the children questions about each character on the page (i.e., How does little Llama feel now? How does his mama llama feel?), with emphasis on the emotions that the characters were experiencing. This time was also utilized by the clinician to correct emotion words that the participants were using incorrectly (e.g., saying that little Llama was mad when he was actually scared), and introducing new emotions (e.g., disgusted, guilty).

The second section focused on story reenactment. The clinician and the child would utilize various toys and props to enact the stories that they had just read and discussed, again highlighting and focusing on the characters' emotions at different parts of the story. The clinician would use this time to model facial expressions associated with emotion words and the use of emotion words by the characters that they were pretending to be. This story reenactment was done multiple times, creating an opportunity for the participants to enact different characters and giving them the opportunity to utilize the modeled emotion words. Using the same story of the *Llama Llama Red Pajama,* the clinician allowed the child to choose which character to play (the mother llama or little Llama). After choosing the parts, the clinician and child would act out the story. During the clinician's dialogue she would model emotion words and discussion items that were used in the story reading section of intervention. Modelling was used with the intent of increasing similar behaviors in the participants. After acting out the story once, the clinician and participant would change parts allowing the participant to imitate the dialogue that the clinician previously used for those characters.

The third section of the session targeted the recognition of emotions from picture cards. The children were presented with cards containing pictures of adults and children displaying various emotions. They were then asked by the clinician to identify the emotion that the person was experiencing. Occasionally this activity was modified by presenting the child with a picture scenario and then asking the child to identify the emotion that the person was experiencing in the given scenario. This activity was not completed every session but was done at various points during intervention to provide more exposure to emotions and the use of emotion words.

The fourth and final section was composed of a journaling activity. The clinician would help the child write down highlights from the session, emphasizing the new emotion words that

were used. The child was also encouraged to draw pictures and re-read the journal entry with the clinician to help reinforce the newly learned emotion words. Continuing with the *Llama Llama Red Pajama* example, the clinician helped the child add words like guilty and frustrated to his emotion word list. The child would then be asked to provide a three to four sentence summary of the story for comprehension purposes.

Follow-up. At the end of the intervention for each semester, the participants completed two follow-up sessions using tasks similar to those from the baseline sessions. This was done in an effort to determine if the child's performance on these same tasks increased as a result of participation in the intervention program. The number of emotion words that the child correctly used during this/these tasks for follow-up sessions was compared to the number of correct emotion word productions that the same child used in the baseline sessions. This information was used to examine usage of the emotion words in a context outside of the intervention. The current study only analyzed the follow-up sessions of each participant's second semester in the intervention program.

Analysis

A trained graduate student clinician reviewed video recordings from each individual session and coded each participant's use of emotion words. The coding of emotion words produced by each child was completed based on guidelines summarized in the coding manual. Coding score sheets were used to provide consistent analysis of data across participants and examiners. Each video was coded to identify the emotion words used, the emotion category for each word, the category in error (only applicable to incorrectly used emotion words), the type of production, and whether or not the child produced valence errors. Each emotion word that was used by a participant was written exactly as it was produced and then placed in one of seven

emotion categories. The seven emotion categories used in this study were *happiness, sadness, anger, fear, surprise, disgust* and *other*. The category of *other* contained emotion words that signify emotion but do not fit into the six existing emotion categories (e.g., embarrassed, guilt, or contempt, as in "I hate you"). The type of production was also recorded. These included emotion word productions made in response to a question (Q), in response to a cue (C), as an imitation of the clinician (R), or produced spontaneously (S). Emotion words produced that differ from the target emotion words were also coded for valence errors.

Data collected from each of the three participants in this social communication intervention study were analyzed as follows: first, the data were analyzed to track the appropriate production of emotion words in each of the emotion word categories targeted for each child. Additionally, the number of incorrect emotion words used was noted, along with the category in error, in order to determine which emotion word categories were being confused and any trends in incorrect emotion word production (e.g., sad being frequently confused with anger). For emotion word errors (mislabeled emotions such as happy for sad), the category of the target emotion was penalized. So, if the target word was from the emotion category of surprise but the child responded with the emotion sad then the surprise category would be penalized. This error occurred because the child did not understand the proper use of the target emotion category.

Data were also analyzed to determine the efficacy of treatment based on the percentage of nonoverlapping data (PND). This was calculated by taking the highest point in the baseline data and determining how many intervention sessions exceeded that point. This total was then divided by the total number of data points. In this study the PND were considered extremely effective if the percentage fell between 91% and 100%, moderately effective if the percentage

fell between 71% and 90%, minimally effective if the percentage fell between 50% and 70% and not effective if the percentage fell below 50% (Schlosser, Lee, & Wendt, 2008).

Reliability

All intervention videos of the three participants of this study were coded by two graduate student research assistants at BYU. These students were trained by another graduate student, who had previously achieved the 90% inter-rater reliability level in previous data coding. The students were trained using the same coding manual and watched and coded 10% of an earlier semester of data with their trainer. Coding took place in the BYU social communication lab where the recordings were stored. Comparisons of each research assistant's coding sheets yielded at least a 90**%** overall inter-rater agreement for the coding of emotion words, emotion category, category in error, type of production, and correct valence of recorded emotion words.

Results

Baseline probes examined the emotion categories of *happiness, surprise, fear, anger, sadness,* and *disgust.* Based on these data, the intervention then targeted emotion categories in which the children showed limited proficiency. This resulted in different targeted emotion categories for each child. Usage of emotion words was evaluated by calculating the percentage of correction production of emotion words representing target emotions by dividing the total number of correctly produced emotion words by the total number of opportunities for the emotion word to be produced in a single intervention session. Each participant's data were analyzed individually and are represented by graphs.

Figures 1 through 3 present the percentage of correct emotion word usage produced by the child in each targeted emotion category across 40 intervention sessions. On each figure, a point is included for each session where one or more emotion words were produced. Breaks in

the figures represented sessions in which an emotion that was not produced. Above each point the total frequency of emotion word productions per session was reported. This provided perspective as to how many productions the percentage was based on (e.g., a correct production of 100% based on 10 productions is more significant than a correct production of 100% based on one production). The PND is also presented for each emotion word category targeted.

AA

AA demonstrated proficiency in the emotion word categories of *happiness, anger,* and *fear* during baseline sessions so these categories were not targeted in intervention. AA's appropriate productions of words for *surprise, sadness,* and *disgust* are presented in Figure 1.

AA's correct use and productions of words for *surprise* showed notable gains during intervention, however, follow-up data were not as consistent. During follow-up AA used words for *surprise* with 0% accuracy in one session and 100% accuracy in the other follow-up session. During intervention AA expanded his emotion word category for *surprise* by using the variant shocked in addition to surprised. Out of 54 total errors throughout the course of intervention, 20 involved substitutions of happy, 11 involved sadness*,* three involved anger, five involved fear, one involved shy*,* two involved guilty*,* two involved confused*,* and there was one occurrence each involving the nonemotion words crazy, hilarious, fishy, and gross. There were six occurrences of the nonemotion word weird for disgusted. No particular emotion word category was overgeneralized and only three errors involved the incorrect valence. AA's PND for intervention in the emotion category of *surprise* was 90%, rating the intervention as moderately to extremely effective.

Figure showing two line graphs titled "Surprise" (top) and "Sadness" (bottom). Both plot Percentage of Correct Productions (y-axis, 0 to 120) against Session Number (x-axis), with Baseline sessions (B1, B2, B3), numbered sessions 1–40, and Follow-Up sessions (F1, F2). Data point labels are shown above each marker.
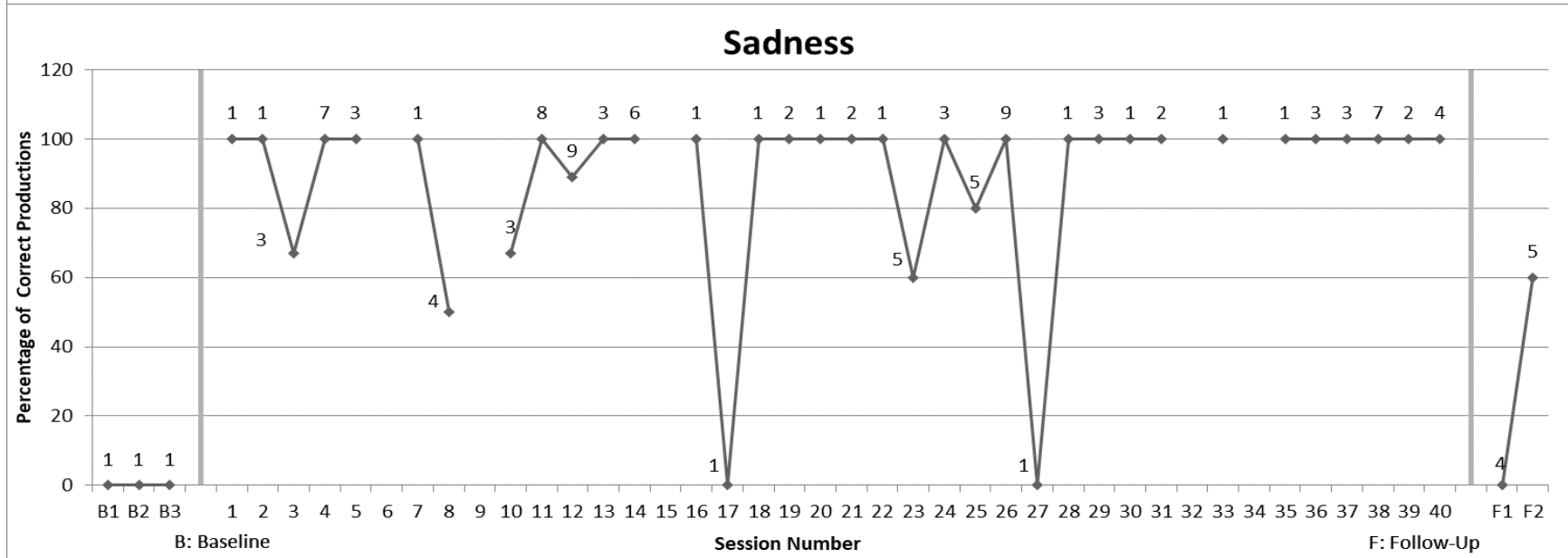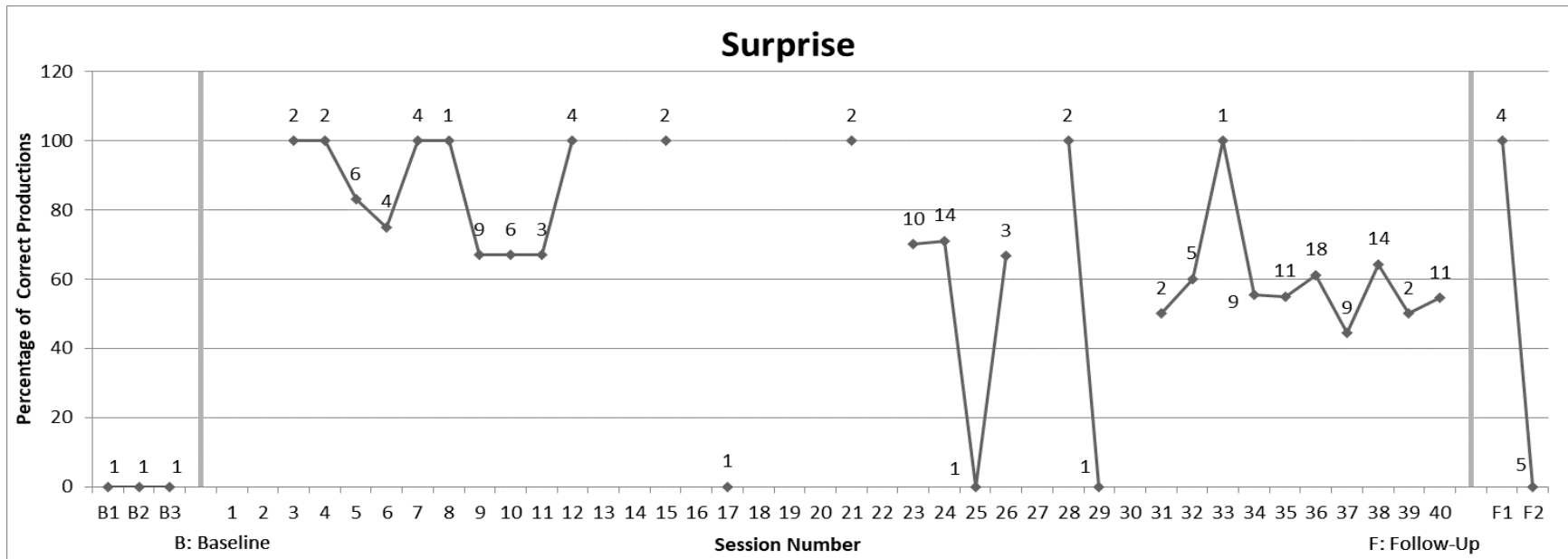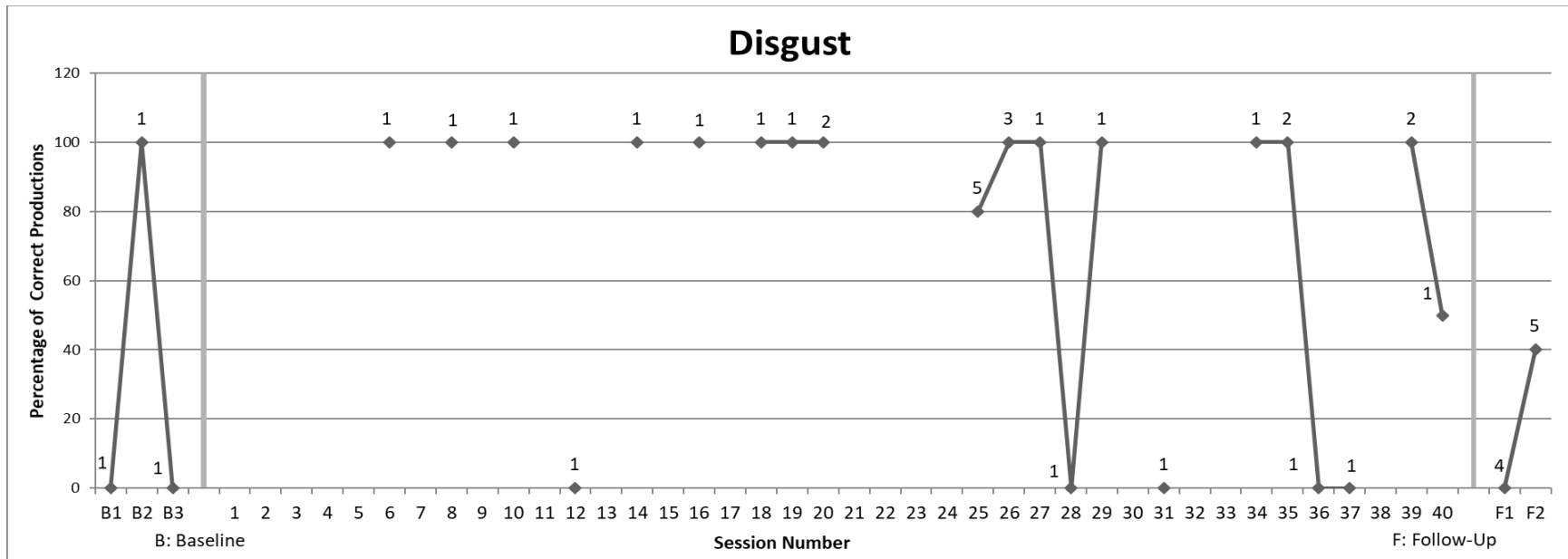
Figure 1. Percentages of correct productions for surprise-, sadness-, and disgust-based words by AA per session. The frequency of occurrences per session is reported above each data point.

AA also made moderate gains during the intervention for the correct use and productions of words for the emotion word category of *sadness*. Follow-up showed inconsistency with AA using sadness with 0% accuracy in one session and 60% accuracy in the other follow-up session. Out of nine total errors throughout the course of intervention, four involved substitutions of fear, three involved anger, one involved sorry/guilty, and one involved nonemotion word serious. No particular emotion word category was overgeneralized and there were no valence errors. AA's PND for the emotion category of *sadness* was 94%, giving the intervention a rating of extremely effective.

The emotion category of *disgust* was still targeted for AA despite his 100% in one of his three baseline sessions. This was done because AA's general performance indicated a lack of proficiency in the emotion category of *disgust*. However, due to time constrains, further baseline probing was unavailable. AA made a 40% gain in the *disgust* category when comparing his follow-up sessions to his baseline sessions even though his intervention gains were sporadic. Out of seven total errors throughout the course of intervention, two involved a substitution of happiness, two involved anger, one involved the complex emotion word disappointed, one involved weird and one involved hurted. No particular emotion word category was overgeneralized and there were two valence errors. PND was not calculated for the emotion category of *disgust* because of AA's baseline data, which would automatically make the calculation 0%.

BB

Baseline indicated that BB was proficient in the emotion word categories of *happy*, *sad, anger, fear,* and *disgust,* so only the emotion word category of *surprise* was targeted in intervention. BB's intervention results are presented in Figure 2.

Figure 2. Percentages of correct production for surprise-based words by BB per session. The frequency of occurrences per session is reported above each data point.

BB demonstrated notable improvement in the emotion word category of *surprise* preforming at 0%-43% accuracy in the baseline sessions to 80%-100% accuracy in the follow-up sessions. Out of 57 total errors throughout the course of intervention, 11 involved substitutions of happy, 12 involved anger, 15 involved sadness and 16 involved fear. No particular emotion word category was overgeneralized and only three errors involved the incorrect valence. BB also began to expand his emotion word use in the category of *surprise* by using the variants of shocked, amazed, and stunned during the second academic semester of intervention. BB's PND for the emotion category of *surprise* was 83%, giving the intervention a rating of moderately effective.

CC

CC performed proficiently in all emotion categories except *disgust* and *surprise.* CC's intervention results for these two emotion word categories are shown in Figure 3.

CC made gains in the correct use of words in the *disgust* emotion word category throughout the course of intervention and then dropped somewhat in follow-up. During baseline sessions, the 0 percentages were the result of CC using emotion words from the *fear* and *anger* categories instead of those from *disgust*. Fourteen total errors were made throughout the course of intervention, five involved substitutions of anger, five errors involved substitutions of fear, three involved substitutions of sad and one involved the substitution of the nonemotion word weird. No particular emotion word category was overgeneralized and only two errors involved the incorrect valence. CC's PND for the emotion category of *disgust* was 82%, giving the intervention a rating of moderately effective.
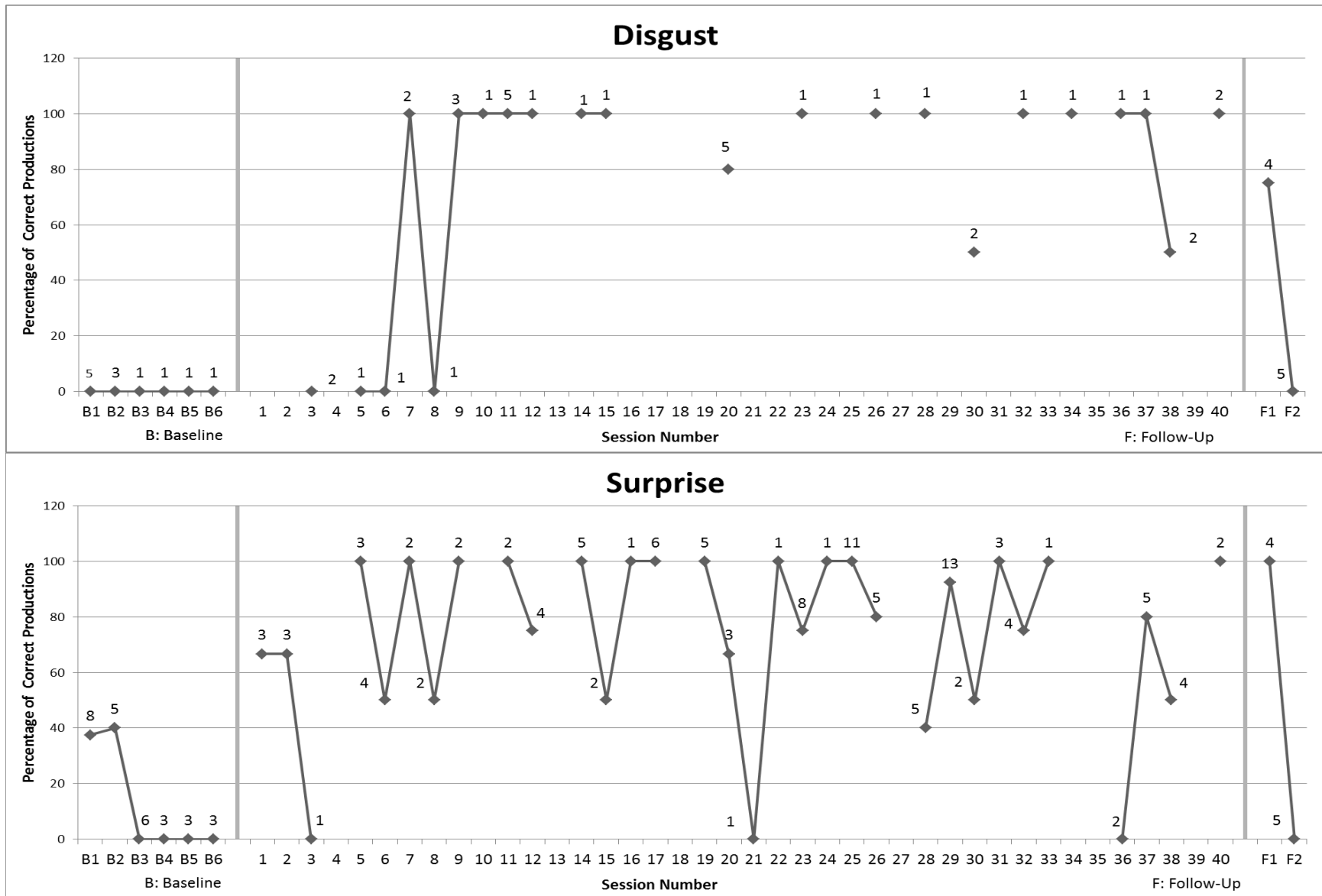
Figure 3. Percentages of correct productions for disgust- and surprise-based words by CC per session. The frequency of occurrences per session is reported above each data point.

CC's production of words in the category of *surprise* showed a relatively stable baseline and a notable increase during intervention. Follow-up data were highly variable. In the 57 errors made throughout intervention, 27 of them were the incorrect use of fear, 2 involved anger*,* 8 involved the substitution of complex emotions (e.g., worried, nervous, and shy) and two involved the nonemotion words weird and funny. CC's overgeneralization of fear in the place of surprise did improve from baseline to follow-up with 24 of the substitutions of fear occurring during the first 20 sessions. In general, performance reflected increased ability to use words to convey surprise. CC also expanded the variety of emotion words used for this category by saying shocked in addition to surprised during intervention. CC had a total of four valence errors. CC's PND for the emotion category of *surprise* was 84%, giving the intervention a rating of moderately effective.

Discussion

This study analyzed the efficacy of a social communication approach to facilitate emotion words in school-age children with DLD. The goal was to facilitate emotion word learning and production of words representing basic emotion categories such as: *happiness, sadness, fear, anger, disgust,* and *surprise.* The social communication intervention was conducted at a local elementary school over the course of two academic semesters, consisting of approximately 40 treatment sessions.

Individual Findings

AA. AA began the study with a very limited emotion word vocabulary. He used the words happy and mad with some accuracy but was not consistent in the use of sad. During baseline and often throughout intervention AA would substitute nonemotion words such as weird, funny, fishy, crazy, and hilarious. This suggested that AA had a lack of understanding of

emotion words because a large percentage of his errors throughout intervention involved the substitution of nonemotion words for emotion words.

When targeting the emotion category of *surprise*, AA presented with no valence errors and only nine total errors during the first semester of intervention (the first 20 sessions). This performance suggested that AA was developing a better understanding of the emotion word category. During the second semester however, AA made a total of 45 errors with three valence errors. This is likely due to the fact that AA's overall opportunities for producing emotion words from the category of *surprise* had increased from 44 during the first semester to 115 the second semester, with a great variety of contexts. This somewhat more challenging task is a likely explanation for the additional errors.

Throughout intervention AA became better at identifying the emotion of surprise presented in facial expressions of adults and children as well as in illustrated books. He did struggle to infer surprise based on context. This was noted best in baseline where AA was presented with pictures and required to identify the displayed emotion, which he did with 0% accuracy. However, as intervention progressed, the task became much easier for AA, so during follow-up he produced 100% accuracy during the recognition of emotion in facial expressions. However, he still had some difficulty inferring the emotional state of characters in stories. This task required a much higher level of inferencing and understanding of the nuances of surprise and proved more difficult.

Overall, AA made notable gains in the target emotion category of *surprise* during intervention. He expanded his vocabulary with the use of the variant word shocked to indicate negative valence and the word surprise to indicate positive valence and there was an overall decrease in his percentage of errors due to nonemotion word substitutions from 33% during the

first 20 sessions to 15% during the last 20 intervention sessions. These factors combined with AA's PND rating of 90%, all indicate that this intervention was very effective.

When targeting the emotion category of *sadness*, AA showed a surprising inability to generalize what he learned during the course of intervention to follow-up. During intervention he showed moderate gains in his ability to correctly use emotion words in the category of *sadness* but he was unable to generalize his ability to recognize emotion in facial expressions in pictures. In comparison, he performed much better at recognizing the emotional state of characters in stories. His performance was surprising because the latter task was much more complex linguistically. It is concerning that a 5 to 6-year-old child has such difficulty correctly identifying and using the word sad*.* This reaffirms the observation that emotional understanding and expression were extremely difficult for AA, even impacting the basic emotions categories of *happy, sad,* and *mad*. Despite AA's inconsistency during follow-up, his emotion word errors during intervention were confusions with emotion words that had the same negative valence. AA appeared to know that a negative emotion word was needed but he still did not fully understand all the nuances of *sadness*. Again, the PND of 94% and the overall improvement of emotion word production from 0% during baseline to 60% during follow-up indicated that this intervention was effective for AA despite the challenging nature of the task.

When targeting the emotion word category of *disgust,* AA had two valence errors over the course of intervention which involved substitution of the word happy for disgust. He also used nonemotion word substitutions such as weird, and hurted, thus indicating a lack of understanding of the emotion category of *disgust.* It was much more difficult to track this emotion category progress due to the low number of times it was directly targeted during intervention (only 21 of 40 sessions) and the low number of opportunities to produce the target

emotion (typically 1 to 2 times per targeted session). However, progress was still seen. In session number 18, AA correctly used the variant of gross to describe *disgust* for the first time during intervention. During the last 20 intervention sessions he began using the word disgust which he had never been observed to do before. No PND could be calculated for this emotion category due to the one correct idiomatic use of the word gross during a baseline session, producing a 100% correct score. However, this intervention was considered highly positive because AA began using the real emotion word of disgust and his ability to correctly identify the emotional state of characters in stories increased; despite the difficult nature of the task and the fact that the emotion category of *disgust* was more complex and less used than those of *happy, sad,* or *mad.*

BB. BB's intervention focused on *surprise.* He showed notable improvement in his ability to use words correctly in the *surprise* emotion word category. He quickly expanded his vocabulary in this emotion word category by using the variants of shocked, amazed, and stunned during the second half of the intervention. BB's overall performance during intervention and his ability to perform at 100% accuracy during the follow-up task of recognition of emotion in facial expressions in pictures, and 80% accuracy during the recognition of emotional state of characters in stories suggest a much more developed understanding of the emotion word category of *surprise* than he initially had at the start of the study.

CC. CC's intervention targeted *disgust* and *surprise.* It is important to note that there were not many occurrences of the emotion disgust in the books that the children studied, and these were the main contexts in which CC was taught about this emotion word category. While the category of *disgust* was targeted in 22 individual intervention sessions, there is the possibility that he may not have learned it well enough to apply it to the higher level inferencing task during

the second follow-up session. However, his intervention PND of 82% suggests that this type of intervention was generally successful for him.

When targeting *surprise,* CC did make progress during intervention despite variable follow-up data. Again, this is likely due to the increased difficulty of the follow-up tasks. While CC was repeatedly exposed to examples of *surprise*, he may not have learned it well enough to be able to apply it in the inferencing tasks contained in the follow-up data. This may have been why his performance dropped in follow-up. CC's use of the variant shocked and his PND of 84% suggest that the intervention was indeed effective for him.

General Implications

While the target emotion word categories varied among participants, all of them showed improvement in the targeted emotions. Although the intervention was more effective for some children than others, all increased in their ability to use the target emotion words more accurately as a result of participating in intervention. AA saw the most progress in the areas of *surprise* and *sadness* and the least in *disgust*, while BB and CC saw moderate progress in their targeted emotion categories.

All participates struggled with the emotion word category of *surprise* in baseline. This was not unexpected. *Surprise* is a more difficult emotion because it can have either a positive or negative connotation which then increases the emotions with which it could be confused. All participants made progress in *surprise* with AA making the most improvement with a PND of 90% with CC and BB close behind with PNDs of 84% and 83%.

Another surprising result of intervention was the use of complex emotions such as jealous, guilty, embarrassed, etc. by all participants. These emotions were highlighted as they appeared in story contexts but the frequency of occurrences was limited. These emotions tend to

be complex and later developing in typical children. Given the difficulty the children with DLD had producing basic emotion words it is encouraging to observe that when given exposure and support they were able to correctly learn and apply more complex emotions. BB produced the most complex emotion words, 14 different types, with AA and CC close behind with each of them producing 8 and 10 different complex emotion words.

Limitations of Study

One of the major limitations of this study was that it was a multiple case-study design instead of a true single-subject design. Because of the individualized nature of the intervention, and the limited number of participants available, the three children varied on the emotion word categories that were targeted. Additionally, the school schedule limited the number of baseline sessions that could be taken. These factors made it impossible to apply a multiple baseline single subject design. Although all the participants saw varied levels of growth on specific emotions it was not possible to assure causation due to the nature of the study design.

Another potential limitation of the study was the intensity of the intervention. As stated previously, individual therapy sessions were conducted twice a week for 20 minutes with each participant taking part in a total of 40 sessions. A number of the children's results indicated growth during intervention and then inconsistent performance during follow-up sessions. This observation suggests that the concepts they were learning required more intense intervention to solidify them.

Other limitations of the study were the unplanned and planned therapy variations that occurred during individual therapy sessions to meet each of the participant's unique needs. For example, if an individual participant did not understand the targeted emotion word the clinician could provide more support (e.g., pictures, modeling, verbal explanation, etc.) thus diverging

from the provided intervention script. Also, participants were at times allowed to choose between multiple books. Although all of the books were preapproved for the intervention due to emotion word content, this then created a slightly different experience for each child. Thus, while efforts were made to provide a similar intervention experience for all the participants, they each experienced different levels of support and exposure to different therapy materials which may have influenced the results.

The children's individual level of attentiveness throughout the course of the study also may have affected their results. For some children, such as BB, the repetitive nature of the questions and tasks appeared to bore him and would frequently take bathroom breaks or go off on tangents and require redirection as therapy progressed. For other children, their individual physical states sometimes affect their ability to participate in individual sessions (e.g., when BB suffered sunburn that made him uncomfortable and made focusing on the intervention tasks difficult for several intervention sessions).

Directions for Future Research

Although this was a yearlong study, more intensive individual sessions may have been needed to produce more consistent results. This could be done by providing more frequent sessions throughout the week or increasing the length of time of the sessions. Also, more sessions targeting complex emotion word categories such as *disgust* might have helped to promote a deeper understanding of that emotion. It is recommended that future interventions be of greater intensity and that target emotions be solicited in as many individual intervention sessions as possible.

Future research would ideally involve a larger number of participants. This would help provide more information as to how a variety of different children with DLD respond to this type

of social communication intervention. Working with more participants would also be helpful in determining if the various phenomena observed in this study are representative of most children with DLD or are unique to the individual participants observed in this study.

It may also be beneficial to have only one clinician work with all the children over the course of the intervention. Because each of the participants in this study was followed over two academic semesters all of them had two different clinicians over the course of intervention. Although these clinicians were trained in how to conduct individual sessions, their personalities as well as individual clinical strengths may have influenced the results. It might also be noted however, that the fact that two clinicians could reliably deliver the intervention could also be considered a strength.

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APPENDIX A

Annotated Bibliography

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Purpose of the Study: This study presents two case studies of children with pragmatic language impairment. The article attempts to: examine the relevance of the current label, describe intervention used with these children and its effectiveness, and to identify shortcomings in current clinical knowledge to be addressed in the future.

Method: Two children, A and B, ages 10 years 3 months and age 7 years and 3 months, were participants in individualized therapy sessions targeting a variety of pragmatic and language skills. Both were already receiving speech services at their schools prior to participating in the study. One participant received intervention focused on interactional communicative skills through a 10 week, three times a week, provided by a specialist speech and language therapist in a mainstream classroom. The other participant's therapy focused on semantic and word-finding difficulties, as well as narratives.

Results: The results of participant A's intervention showed that while there was improvement in various treatment areas, the improvement was not statistically significant. Overall, participant A's summed pragmatic mismatched codes decreased from 15.79 to 7.7% after intervention indicating that there was an improvement in communicative acts and their responses being relevant. Participant B's results indicated that there has a significant increase in word-finding skills and that narrative skills also improved. Participant B was also perceived as much more confident and outgoing, being more willing to conversing with adults and other children after intervention.

Conclusion: The results of the two case studies demonstrated that with targeted intervention and appropriately sensitive assessments it is possible to measure changes in pragmatic abilities in children with language impairments. Psychometric approaches, as well as metapragmatic therapy can be effectively combined with typical language intervention to facilitate teaching social communication and language skills.

Relevance to Current Work: This study relates to the current thesis study because both are multiple case study designs that analyze the effectiveness of individual intervention at teaching pragmatic skills to children with PLD which is similar to LI.

Adams, C., Lloyd, J., Aldred, C., & Baxendale, J. (2006). Exploring the effects of communication intervention for developmental pragmatic language impairments: A signal-generation study. *International Journal of Language & Communication Disorders, 41,41-65.* Retrieved from https://search.lib.byu.edu/byu/record/edsbyu.cmedm.16272002

Purpose of the Study: This study assessed the effectiveness of intervention designed to teach pragmatic behaviors in school-age children with pragmatic language impairment (PLI). In particular, this study attempted to find the best way to measure progress in pragmatic goals.

Method: The study participants consisted of six children (ages 6;0 to 9;11) who were diagnosed with PLI and no other co-occurring condition. They met the following criteria: attended mainstream primary schools, had pragmatic communication difficulties, received a pragmatic composite score of less than 132 on the Children's Communication Checklist (CCC), were not receiving therapy for pragmatic deficits, and scored at the 25%ile or above on the Raven's Coloured Progressive Matrices (assessing non-verbal perceptual/analogical reasoning skills). The children were split into two groups with three participants in each group. Eight weeks of therapy was conducted in an ABA reversal design (A1=baseline assessment, B=intensive treatment and A2=no treatment).

Results: The treatment results indicated that all children improved in one or more subtests on the Assessment of Comprehension and Expression (ACE) and Clinical Evaluation of Language Fundamentals (CELF). Three of the five participants had improved scores on the ACE Inferential Comprehension subtest. Parent and teacher perceptions of the needs of individual participants and how to use common communication strategies at home improved.

Conclusion: This study demonstrated that intervention could produce a positive change in the pragmatic communication behaviors of children with PLI. All the participants showed improvement in one or both of the two quantitative outcome instruments (i.e., conversation analysis and standardized language tests). All of the participants saw improvements on the parent/teacher perception questionnaires that were administered at the beginning and end of the study.

Relevance to Current Work: This study indicates that children with PLI can benefit from direct intervention on pragmatic communication skills. The current thesis focuses on the improvement of social-communication skills (i.e., emotional intelligence) through administering direct intervention to school-age children with LI.

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

Purpose of the Study: This study assessed the effectiveness of intensive speech and language therapy services in improving conversational and social communication skills for school-age children with persistent pragmatic and social communication needs.

Method: A two-arm parallel-group randomized controlled trial was carried out with 88 children who met the following criterion: between 6 years to 10 years and 11 months old, pragmatic communication problems (a minimum of problems on two of five pragmatic behaviors from a

social communication behavior checklist), attending mainstream educational setting, identified as having special educational needs, no diagnosis of autism, and currently receiving language services. The children were randomly assigned to a social communication intervention program and a treatment-as-usual condition in a 2:1 ratio. Delivery, coding, and soring were completed by a research assistant blind to treatment allocation. Questionnaires were also completed by parents or teachers and were returned by post to a researcher who was not involved with their child's intervention.

Results: Standardized measures of overall language performance were taken using the CELF-4 Core Language Standard Score (CLSS) and did not show any significant effect of the social communication intervention program when compared with the treatment-as-usual group. For the children who scored in the low ability/language impaired range on the CELF-4 CLSS at baseline their post-treatment scores showed a trend in favor of intervention even through differences were not large enough to produce a statistically significance between groups. However, children in the treatment group did show statistically significant gains over the control group on parent and teacher report measures of conversational and social competence.

Conclusion: The results of the study indicated that a social communication intervention program can be effective in improving conversational quality in 6-11 year-olds with significant pragmatic and social communication needs. This type of intervention was also perceived by parents and teachers as effective in improving some functional pragmatic and social communication skills at home and school.

Relevance to Current Work: This study relates to the current study because both assess the effectiveness of social communication intervention in teaching social communication skills.

Brinton, B., & Fujiki, M. (2017b). The power of stories: Facilitating social communication in children with limited language abilities. *School Psychology International*, *38*, 523-540. doi:10.1177/0143034317713348

Summary: This article provides a thorough description of the various language and social communication difficulties of children with LI and advocates for the use of bibliotherapy approaches to help facilitate language growth in these children. Suggested ways to implement this approach were addressed through book selection, identifying concepts to highlight, creating a script, and sharing the story. Interventionists were advised to use the techniques of slowing down speech, simplifying language structure, using stress, intonation, facial expression and gesture, offer prompts with increasing support, expanding on the children's responses, repeating the story, and checking for comprehension in order to facilitate understanding. Overall, bibliographic techniques are functional and affordable ways for interventionists, parents, and teachers to use stories to facilitate language learning, conversation skills and emotional learning.

Relevance to Current Work: This article relates to the current study because both address the use of storybooks to teach emotion understanding to children with LI.

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

Purpose of the Study: This study analyzed how children with Specific Language Impairment (SLI) behave in negotiation tasks in order to examine the level that their social communication skills impact their interactions with peers.

Method: Fifty four children participated in the study and were divided into 18 triads. Each triad consisted of a target child and two partners. The target participants included 6 children with SLI, 6 chronological age (CA) matches, and 6 similar language (LS) ability matches. Each child participated in a "snack shop" task where each child in the triad had an equal number of poker chips to purchase a snack. The interactions of these triads were analyzed.

Results: Data was analyzed by calculating the number of utterances produced, identifying and categorizing communicative acts into strategy levels, and determining the mean level of strategy production by participants within each triad. It was found that while the production of utterances within triads varied, target subjects with SLI consistently produced fewer utterances than their partner.

Conclusion: It was found that children with SLI produced significantly smaller percentages of negotiation strategies produced by their triads. These children also used developmentally lower level strategies than their typically developing partners. Similar findings were not observed in the CA and LS triads.

Relevance to Current Work: This research article is relevant to the current work because both target social communication skills in children with LI, as well as how to make help children with LI improve in those skills.

Brinton, B., Fujiki, M., & Powell, J. M. (1997). The ability of children with language impairment to manipulate topic in a structured task. *Language, Speech, and Hearing Services in Schools, 28*, 3-11. doi:10.1044/0161-1461/97/2801-0003

Purpose of the Study: This study investigated the effectiveness of using a somewhat structured topic task to separate out children with SLI from typical children of similar ages and language levels. The goals of the study were to document any difficulties observed in children with SLI on two different topic types, as well as to search for assessment contexts and types of topics that might increase the feasibility of topic evaluation in clinical populations.

Method: Participants consisted of 30 white monolingual English speaking children. They were divided equally into three groups: a group with SLI, a chronological age matched group, and a group of children functioning at a similar language level as the group with SLI. All the subjects worked with the same adult examiner in a dyadic interaction. The children were given opportunities to maintain or develop topics that were introduced by the examiner. Three object-verbal topics and three verbal topics were introduced.

Results: The number of utterances each participant produced in response to the various topics was calculated. It was found the children with SLI produced the largest amount of appropriate and inappropriate utterances to both object-verbal and verbal topics. It was also noted that typically developing subjects in the CA and LS groups usually maintained the object-verbal

topics appropriately. The participants with SLI had more difficulty maintaining the verbal topics. They also introduced more appropriate and inappropriate new topics that either of the other groups.

Conclusion: The results of this study suggest that children with SLI have particular difficulty with aspects of topic maintenance such as making appropriate utterances, maintaining verbal topics, and introducing appropriate new topics. Even when compared to CA and LS groups, children with SLI produced the largest amount of appropriate and inappropriate utterances thus, separating themselves from their peers.

Relevance to Current Work: This study relates to the current thesis because it analyzes the use of emotion understanding when maintaining a conversation. As children with LI improve their emotional understanding abilities, their ability to appropriately converse with people should also improve.

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

Purpose of the Study: This study investigated the way that individual social-behavioral profiles of children with LI influenced their ability to work cooperatively in groups.

Method: This study was done in the context of an elementary school with six children who had a primary diagnosis of LI (based on school district assessments and referrals). Children ranged in age from 6;1 (years;months) to 7;6 years. The participants with LI participated in four cooperative work groups in which they interacted with two typically developing partners. The groups were structured so that each child with LI could take part in three different roles and participate in four different activities. Prior to participating in the study each child's teacher completed the TBRS, a research instrument developed to assess social behavior.

Results: The results of the TBRS indicated that two children had a profile characterized by withdrawal, two more had social profiles that were high in aggressive and withdrawn behaviors, and two others had relatively typical social profiles. The children were then evaluated individually on their performance in groups. It was noted that, while all groups had periods where the children worked independently (rather than cooperatively), this type of work was most prevalent in groups containing children LI with low levels of sociability and/or high levels of withdrawn behavior.

Conclusion: Overall, it was determined that placing children with LI in social contexts does not insure that they will interact. The social profile of each child, in addition to language level, was also a key indicator in predicting how each child would be included in the group work.

Relevance to Current Work: This study is relevant to the current work because both address the implications that LI has on a child's ability to form relationships and communicate socially.

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

Purpose of the Study: This study described the effectiveness of individualized social-language intervention in teaching an adolescent male with LI how to form relationships with peers through conversation.

Method: The participant was an adolescent named Larry who was diagnosed with LI when he was 4;5 years-old. His test scores remained consistent with a diagnosis of LI as he matured. He struggled to make social inferences in interactions and would often fail to respond appropriately to the emotional reactions of peers. His social communication intervention focused on helping Larry to think of conversation as a reciprocal endeavor and to provide him with some concrete strategies to solicit and act on contributions from others in conversation. Treatment utilized video clips from movies, role plays, and conversation tasks. Treatment occurred at a university clinic, twice a week for 50-minte sessions over the course of four semesters lasting 14 weeks each. He also attended five additional sessions during the summer semester.

Results: The outcomes of treatment showed that Larry consistently had difficulty interpreting speakers' intents especially when messages were not literal. However, after six months of participating in the intervention program his mother reported that she saw generalization of conversation skills at home. At nine months Larry also began generalizing the conversation rules to the carpool. Larry's self-awareness of his role in conversation as well as the impact of using his conversation skills improved, which allowed him to have "a good conversation" with peers at school.

Conclusion: This study demonstrated that individualized social communication intervention can be beneficial in improving the quality of interactions between children with LI and their peers. Larry's case illustrates that individuals with LI need help navigating social interactions at every stage of development.

Relevance to Current Work: This study is relevant to the current thesis because both address the effectiveness of individualized social communication intervention. As children with LI improve in emotional understanding their ability to recognize the emotions of peers in conversation may improve.

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

Purpose of the Study: This study investigated the ability of children with SLI and typically developing peers to dissemble emotions in specific social contexts. The strategies that children with SLI and their typically developing peers used to advocate for characters presented in social

scenarios were analyzed, as well as the perceptions of the characters' parents would want them to use in the various social contexts.

Method: Nineteen children with SLI and 19 children with typically developing language were recruited for the study. The children were presented with 10 hypothetical social situations to elicit one of five emotions (i.e., happiness, sadness, hear, anger, and disgust). The main character's name (Chris) and appearance were gender neutral enabling the stories to be matched to the participant being tested. Following the presentation of a scenario, the participants were asked four different questions assessing comprehension, emotion, dissemblance, and display rules.

Results: The results of the study analyzed the participants' responses to the four different questions. It was found that the children in both groups could appropriately answer the comprehension questions. Additionally, the children could identified that Chris would experience a negative emotion in most cases. It was found that typical children offered more dissemble strategies and fewer display strategies than children with SLI. It was also noted that female respondents suggested that Chris's parents would want the character to dissemble their responses more frequently than did male respondents.

Conclusion: Both children with SLI and their typically developing peers were able to comprehend specific contexts and infer emotions to be experienced with about the same accuracy. The dissemblance task was difficult for children in both groups. However, typically developing children produced significantly more responses indicating that Chris should dissemble emotions than children with SLI. It was noted that both groups indicated that Chris's parents would want him/her to dissemble emotion at about the same rate. These findings indicate that children with SLI do not have the same emotion understanding as typical children regarding impact of displaying a negative emotion on relationships.

Relevance to Current Work: This study correlates to the current study because both address emotional intelligence in children with LI. As emotion understanding is improved in children with LI their ability to understand dissemblance of emotion in social situations should improve.

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

Purpose of the Study: This study is a meta-analysis of social and emotional learning (SEL) programs of school-based universal SEL programs for school-age children. It was hypothesized that SEL programs would yield significant mean effects across various domains (such as skill, attitudinal, behavioral, and academic). Also, that teachers would be effective in administering these programs, and that multicomponent programs would be more effective that single-component programs.

Method: Four search strategies were used to gather systematic, nonbiased, and representative studies. Together these strategies identified 213 school-based, universal SEL programs

involving 270,034 school-age students from kindergarten through high school. The effect of the SEL was analyzed across multiple outcomes: social and emotional skills, attitudes toward self and others, positive social behavior, conduct problems, emotional distress, and academic performance.

Results: The findings of the study indicated that SEL programs significantly improve students' skills, attitudes, and behaviors. Students who participated in SEL programs also demonstrated fewer conduct problems and had lower levels of emotional distress.

Conclusion: The teaching of social and emotional skills positively improves students ability to be socially and emotionally competent and have positive attitudes about self, others, and school.

Relevance to Current Work: Both studies deal with the teaching of social and emotional skills to better enable students to interact positively with peers and others.

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

Purpose of the Study: This study used response time measures to determine whether children with LI and children with typical language (TL) were making inferences about emotions during discourse. The relationship of social competence to the ability to make inferences was also examined in the participants.

Method: The participants consisted of two groups of children attending preschool in the central New York area. Sixteen children had LI and 16 children had TL. An emotion inferencing task was administered to each child via a Dell portable laptop. Scenarios designed to elicit a specific emotion were presented, followed by a facial expression of emotion that either matched or did not match the emotion expected from the story. The children were then asked to name the facial expression.

Results: The typical children produced a significantly slower reaction time when presented with the scenarios followed by the non-matching facial expression (compared to the matching facial expressions). Children with LI did not produce a difference in response time between the two conditions. These results indicated that children with TL were more likely to infer emotional states during discourse compared with children with LI.

Conclusion: This study indicates that children with TL are able to make emotion inferences based on brief three-sentence while; children with LI did not make emotion inferences with the same information.

Relevance to Current Work: This study relates to the current work because both address emotion understanding in children with LI. When children with LI are taught emotion words as well as how to identify emotions based on situational cues their ability to infer emotion may improve.

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

Purpose of the Study: This study was designed to investigate if children with LI have difficulty identifying facial expressions, if they can integrate facial expression knowledge with other verbally, and/or visually presented information, and if their inferencing difficulties are modality-specific.

Method: Participants included 24 children attending kindergarten in the central New York area. Twelve children had LI and 12 were typically developing in their language skills. Four picture cards were drawn of facial expression depicting the emotions of happy, surprised, mad, and sad and nine stories were used to target each of the emotions. Each story was depicted using the modalities of visual only, verbal only, and visual/verbal concurrently. Children were evaluated individually and were asked to identify the facial emotions, point to a specific emotion depicted by a card, and infer what character might feel given a scenario.

Results: It was found that all the children had more varied ability at naming the emotion of surprise but, responded well to explicit teaching of the name and then were able to comprehend all four emotions with 100% accuracy. During the inferencing task it was noted that children with LI were not as proficient as their peers. Also, there was an effect due to modality. All children did much better at inferring the correct emotion when presented with visual/verbal concurrent presentation of the stories. Children with LI had more difficulty than their peers regardless of the modality of presentation. Children with LI also had more difficulty making appropriate inferences regardless of emotion or mode of presentation and they made more valence errors than their peers.

Conclusion: This study illustrates that children with LI do differ from the typically developing peers in processing social information. While all the children were able to identify facial expressions with the same accuracy, children with LI had difficulty at integrating this emotion knowledge in order to make accurate social inferences. Children with LI were also more likely to provide emotions of different valence such as substituting mad for happy.

Relevance to Current Work: This study is relevant to the current study because both address the problem of emotion understanding in children with LI. The current study attempts to teach children emotion words and how to apply them with storybook scenarios and hypothetical situations.

Fujiki, M., Brinton, B., McCleave, C. P., Anderson, V. W., & Chamberlain, J. P. (2013). A social communication intervention to increase validating comments by children with language impairment. *Language, Speech & Hearing Services in Schools (Online), 44,* 3-19. Retrieved from https://search-proquest-com.erl.lib.byu.edu/docview/1324441177?accountid=4488

Purpose of the Study: Four school-age children with LI were selected to receive individualized social-communication intervention to determine if typical social interaction tasks (i.e., the

production of validating comments, making positive statements, sharing information and asking peers questions about themselves) could be increased through intervention.

Method: Four school-age children with LI, from the same elementary school, were selected for the study by meeting the criteria of: placement in a mainstream classroom with pull-out language intervention, performance of at least 1 SD below the mean on a standardized language test, typical vision and hearing, and a psychological assessment ruling out any other developmental or psychiatric disorder as a primary diagnosis. Intervention lasted 10 weeks with the three first-grade participants receiving a total of forty 15-minute intervention sessions, and the fourth grader receiving a total of twenty 30-minute sessions. Sessions focused on discussing and rehearing appropriate behaviors and cooperative play behaviors.

Results: Three of the four participants showed increases in validating comments during the course of intervention while one of them neither decreased nor increased. One of the participant's negative comments decreased as her production of positive comments increased and another participant's overall number of negative comments decreased without any correlation between his productions of validating comments. The other two participants produced few negative comments during the entire intervention. Social measures taken before and after intervention indicated that one child saw no improvement in peer acceptance and sociability ratings, while another child's likeability remained fairly constant. The other two children improved in their overall likeability and prosocial behaviors as rated by their teachers but not by their peers.

Conclusion: As a result of treatment, three of the four children with LI increased in the production of validating comments. The child that showed no improvement displayed characteristics of withdrawal behaviors so this may have had an effect on her ability to increase her prosocial behavior. While peer acceptance did not improve with any of the research participants, two of the four participants had improved perceptions of likeability and prosocial behavior as rated by their teachers who were not aware of the details of the social communication intervention. This outcome suggests that continued social-intervention therapy may indeed produce gains in prosocial behaviors.

Relevance: This study demonstrated that social communication intervention can produce an increase in targeted prosocial behaviors. While this type of intervention may not produce drastic changes in children with LI's peer acceptance rate it can influence teacher perception of likeability and prosocial behaviors. The current thesis also analyzes the effect of social-communication intervention to teach emotion words in order to increase prosocial behaviors.

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 America Speech-Language-Hearing Association (ASHA) organized a committee to do a systematic review of current speech and language interventions designed to target pragmatic or social skills in school-age children with LI. The children with LI had varying

degrees of LI and were not diagnosed with any other preexisting condition. The ad hoc committee reviewed 11 independent types of intervention (i.e., positive behavioral support, parent treatment programs, milieu teaching treatments, communication partners treatment, peer mediation, conversation/discourse treatments, pragmatic treatments, social skills training treatments, applied behavioral analysis, narrative/discourse treatments, and responsivity training treatments) and evaluated their effect on language in social communication.

Method: All analyzed studies had to meet the criteria of: being written in English, being taken from peer-reviewed journals (published from 1975 to 2008), and containing data relating to at least one of the previously mentioned 11 intervention procedures. Studies involving children between the ages of 5 and 11 were examined. The ASHA's National Center for Evidence-Based Practice in Communication Disorders (N-CEP) and the ASHA committee worked together to rate and select the studies for evaluation.

Results: A total of eight studies were identified for analysis and only three of the 11 interventions were addressed by the studies. The three questions asked during analysis of the studies were: "Is there an effect of conversation/discourse treatment on language use in social interactions?", "Is there an effect of pragmatic treatments on language use in social interactions?", and "Is there an effect of narrative discourse treatment on language use in social interactions?" Results of these studies indicated that there were varying degrees of improvements in pragmatic targets, topic management skills, narrative production, and in communicative repairs. However, changes in semantic and structural aspects of language were mixed and there were reported improvements in word finding, sentence imitation and formulation.

Conclusion: While the studies supported the use of various interventions to change specific social behaviors they were unable to provide evidence of generalizability of the learned skills. This is due to the quantity and quality of the research analyzed and the nature of the treatment. There was a lack of research articles that met the most stringent level of evaluation criteria for the study and most of the studies had one to 20 children in the treatment. One of the biggest limitations of these studies was that the children analyzed did not represent a homogenous group because of the wide spectrum of the severity of their individual LI.

Relevance to Current Work: One of the primary conclusions of the committee was that there is a need for more studies to evaluate the efficacy of social communication interventions for children between the ages of 5 and 11 years. This study demonstrates that while social communication intervention is successful in treating school-age children with LI, there are a range of variables that can influence that success. LI should also be seen as more of a spectrum instead of one homogenous group because severity and personality can also impact the effectiveness of intervention. The current thesis also explores the effectiveness of social-communication intervention in teaching a spectrum of children with LI emotion words.

Klecan, J. S. (1993). A treatment programme for improving story-telling ability: A case study.
    Child Language Teaching and Therapy, 9, 105-115.doi:10.1177/026565909300900202

Purpose of the Study: This study was designed to determine if direct intervention could increase a language/learning disabled child's ability to tell a story. Because narrative production can be related to the development of academic skills, further investigation was warranted to determine it direction intervention on story retell could produce results that would benefit a child in multiple areas.

Method: The authors used a case study research design. A white male 8;8 year-old was the participant. Prior to treatment, the participant completed an array of tests to assess language and the scores. These data indicated that he was below average in vocabulary comprehension as well as expressive vocabulary. Treatment consisted of a 12-week intervention program.

Results: Data collected at the end of the 12-week intervention program showed that there were increases in: t-units within stories, clauses per t-unit, and overall complexity in both oral and written stories. Improvement in written stories was an interesting byproduct of therapy considering it was not explicitly targeted.

Conclusion: The direct intervention of teaching story elements did produce a measureable change in the length and complexity of the participant's abilities to tell oral stories. It can be hypothesized that this type of intervention would be beneficial to other children who struggle with expressive language (i.e., SLI, PLI, etc.).

Relevance to Current Work: This study demonstrates how direct intervention targeting story retell can be successful in an individual with learning disabilities story retell skills. The current thesis also explores the effectiveness of intervention in teaching pragmatic skills (i.e., emotion words) to children with LI utilizing stories and narratives to provide a meaning for context for therapy.

Merrison, S., & Merrison, A. J. (2005). Repair in speech and language therapy interaction: Investigating pragmatic language impairment of children. *Child Language Teaching and Therapy, 21*, 191-212. http://dx.doi.org/10.1191/0265659005ct288oa

Purpose of the Study: This study analyzes the effectiveness of intervention at teaching pragmatic skills to three groups of children: children with pragmatic language impairment (PLI), children with specific language impairment (SLI), and typically developing children (TD). The pragmatic skill targeted in the study was communication repairs.

Method: A total of nine children, ages 7 to 11 years, were selected so that there were three children with PLI, three children with SLI, and three TD children in the study. The three children with PLI participated in 6-week pragmatic intervention with a one-on-one clinician to child ratio. The intervention focused on teaching communication repairs based on the use of a *Map Task* (Brown *et al.,* 1984).

Results: Baseline data on the three groups of children showed that TD children initiated repairs 67% of the time, children with SLI initiated repairs 78% of the time, and children with PLI initiated repairs 11% of the time. Follow-up data after intervention showed that TD children

initiated repairs 100% of the time, children with SLI initiated repairs 67% of the time, and children with PLI initiated repairs 78% of the time.

Conclusion: The results indicated that all groups responded well to intervention. These data suggest that children with PLI can learn and benefit from being explicitly taught pragmatic skills that they lack.

Relevance to Current Work: This study shows that direct pragmatic intervention can indeed be successful in teaching social skills to school-age children with PLI as well as SLI. The current thesis focuses on the teaching of pragmatic skills (i.e., emotional intelligence) to school-age children through social-communication intervention.

Richardson, K., & Klecan-Aker, J. S. (2000) Teaching pragmatics to language-learning disabled children: A treatment outcome study. *Child Language Teaching & Therapy, 16,* 23-42. Retrieved from https://search.lib.byu.edu/byu/record/edsbyu.aph.7393447

Purpose of the Study: This study was designed to determine if certain pragmatic skills (i.e., conversation, internal responses, and qualitative and quantitative descriptions of objects) could be taught to children with learning disabilities.

Method: Treatment was conducted in a time-series ABA design (i.e., A = baseline, B = segment, A = follow-up baseline). Research participants were selected from a private school of individuals with learning disabilities and divided into two groups according to their ages. All participants were given the Clinical Evaluation of Language Fundamentals-Revised (CELF-R) and standard scores ranged from 72 to 93 (mean = 83.6) on the complete battery. Criterion-referenced tests were used to collect baseline of pragmatic skills and structural language skills. The participants were then reevaluated after 6-weeks of intervention.

Results: All data gathered indicated that both groups of participants improved in target areas (i.e., conversation, receptive and expressive identification of emotions, and qualitative and quantitative description of objects) following the 6-week intervention period.

Conclusion: The results indicate that children with learning disabilities can be taught specific social communication skills through intervention.

Relevance to Current Work: This study shows that explicit pragmatic intervention can be successful in teaching school-age children with learning disabilities social communication skills. The current thesis also explores the effectiveness of intervention in teaching pragmatic skills (i.e., emotion words) to children who lack those skills, specifically children with LI.

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

Purpose of the Study: Recent research has indicated that children with LI have difficulty with emotion understanding, indicating that their ability to discern and understand others emotions based on situational and expressive cues is impaired. This study attempts to further explore the emotion understanding skills of children with LI by considering their ability to infer emotions elicited by specific social situations.

Method: Forty three children with LI and 43 typically developing children were selected from two school districts in the western USA. Children in the group with LI were matched for gender and chronological age to peers in the typical group. Both groups of children were largely drawn from a white, middle-class population. The participants were presented with story scenarios in which the main character was exposed to a situation that elicited a specific emotion (i.e., anger, fear, happiness, or sadness). After being presented with the scenarios the participants were asked to indicate what emotion was experienced by the main character of the story. The scenarios were supported by pictures.

Results: The results were analyzed using a four-way, mixed ANOVA. Emotion (anger, happiness, fear and sadness) was a within-subjects factor and the language group (LI and typical), gender, and age were between-subject factors. Happiness was the most accurately identified emotion followed by sadness, fear, and anger. Older and typical children were more accurate in their identifications than younger children and children with LI.

Conclusion: Most children in the current study were accurate at recognizing the scenarios that might elicit happiness and had varying success at identifying the other target emotions. It was also noted that younger children were more prone to confuse fear and anger when compared with older children. Children with LI had much more difficulty talking about their emotional experiences than their typical peers. Overall, this study provided additional evidence that many children with LI have difficulty with basic aspects of emotion understanding. Further, these difficulties could be wholly attributed to limited language.

Relevance to Current Work: This study relates to the current thesis because both are assessing the emotional understanding of school-age children with LI. This research study suggests that children with LI struggle to accurately talk about emotional experiences as well as identify emotions. The current thesis assesses the effectiveness of social communication intervention at teaching emotion understanding to children with LI.

Swanson, L. A., Fey, M. E., Mills, C. E., & Hood, L. S. (2005). Use of narrative-based language intervention with children who have specific language impairment. *American Journal of Speech - Language Pathology, 14,* 131-143. Retrieved from https://search.proquest.com/docview/204279396?accountid=4488

Purpose of the Study: This study assessed the feasibility of a narrative-based language intervention (NBLI) that focused on grammar structure and narrative content and form for school-aged children with specific language impairment (SLI).

Method: Ten school-aged children (ages 6;11 to 8;9) who were monolingual English speakers were selected as participants. These children met the following criteria: score at least -1.5 SDs

on speaking composite and/or spoken language quotient subtests of the Test of Language Development-Primary: Third Edition (TOLD-P3), passing a hearing and an oral-motor screening, and no reported neurological or social-emotional disorders. A 6-week NBLI was then conducted focusing on narrative quality and number of different words as measures of the outcomes.

Results: At the end of the study it was reported that eight of the 10 children with SLI made clinically significant improvement in narrative quality and only one of the 10 children improved in the number of different words measure. While eight of the 10 children made clinically significantly gains during the study it is difficult to determine if the changes are a direct result of the NBLI. The children at the end of the study were able to produce simple narratives containing setting, characters, plot, and ending. This finding was consistent with previous studies stating that NBLI can enhance narrative skills in children with SLI. The study also showed a lack of improvement in the number of different words as well as no gains in syntactic abilities or working memory.

Conclusion: Findings of this study indicate that NBLI is well accepted by school-age children and is effective in facilitating narrative elements to children with SLI. All participants made clinically significant improvements in their narrative quality within a 6-week time period.

Relevance to Current Work: This study demonstrates that NBLI can be very effective in teaching narrative elements in an interactive, meaningful way to school-age children with SLI. The current thesis utilizes a type NBLI to teach emotion words to school-age children with LI.

APPENDIX B

Emotion Word Coding Manual

Participant's Initials:

Session number and Date:

Length of Video:

Coding completed by:

Activity	Emotion Word	Emotion Category	Category in Error	Target Match	Time of Production	Type of Production	Valence Match	Specificity	Over-extended

Emotion Word Coding Manual

Guidelines for Each Coding Category

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

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

> Happiness (H): like, love, happy, enjoy
> Surprise (Su): surprise, surprised, confused
> Anger (A): mad, angry
> Fear (F): afraid, frightened
> Disgust (D): used to describe feelings toward sensory feelings, smell, taste, sight, etc., The words like "smelly" and "yucky" are only coded when used as a feeling. (e.g. when the child is shown a picture of a boy eating a worm and when asked how the boy feels the child says "yucky.")
> Contempt (C): used to describe general feelings of dislike towards a person, laughing at someone meanly, "I hate the boy."
> Sadness (Sa): unhappy, sad, miserable

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

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

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

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

Spontaneous (S): The participant produces the emotion word without any modeling or cueing from the clinician. This also includes when the participant is looking at a book and produces the emotion word without reading it, being asked a question, or being cued in any way.

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

Question (Q): The child produces the emotion word following a question (e.g., "How is the boy feeling?"). The question does not need to be specifically about emotion, but produces an emotion word following any question asked by the clinician (e.g., "What is the boy doing?" and "What did she bring you?"). If the clinician gives two choices (e.g., "Is the boy sad or happy?") and the child picks in answer that is counted as a question.

Repetition/Imitation (R): The clinician produces an emotion word and within the next five seconds, the child repeats it (or a simplified form of it). If either the clinician or child produces other verbalizations before the child repeats the word, it is not counted as a repetition. If the clinician gives two choices (e.g., "Is the boy sad or happy?") and the child picks an answer that is not counted as a repetition.

Correct Valence vs. Incorrect Valence – Valence is considered correct if the word produced matched the valence of the intended word. Words produced of a different valence as the intended word are considered to have incorrect valence (e.g., saying "happy" instead of "sad" is incorrect valence because the two are positive and negative; saying "mad" instead of "sad" is correct valence because the two are both negative. Surprise can be positive or negative depending on the context. If the character or child is coming out better than he or she started, than the valence is positive. If the character or child is coming out worse than he or she started, than the valence is negative).
+ = Correct Valence
- = Incorrect Valence

Specificity—Specificity is considered correct if the word produced is correct and appropriately specific in the context. It is considered incorrect if the emotion word is inappropriate in the context or if the word is correct but not specific ("not happy" for "sad").
+ = Correct specificity
- = Incorrect specificity

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

Special Coding Considerations

Code the following:

1. Specific names for emotions (e.g., sadness, happiness, anger, etc.)

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

Do not code the following:

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

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

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

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

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

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

APPENDIX C

Parental Permission Form

DEPARTMENT OF COMMUNICATION DISORDERS

BRIGHAM YOUNG UNIVERSITY

136 TAYLOR BUILDING

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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.

Procedures: I am asking you to enroll your child in a 12- to 14-week intervention 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 or three treatment sessions per week, each lasting about 30 minutes. All treatment sessions will be video recorded. These sessions will work on helping the child to understand better the emotional responses of others. All treatment sessions will take place during the regular school day. In addition, your child may be given additional testing to make sure that he/she meets the study criteria. Some of this testing is likely to already have been done but it not it may take an additional two hours of time to complete. If the testing has already been done, we would like to request your permission for the school clinician to make this information available to us. All treatment session 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 paper copy of a social skills questionnaire for your child before and after the intervention takes place.

Risks/Discomforts: There are minimal 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 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 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 on a secure hard drive in a locked lab at BYU. These images will be used to document how well your child responses to the intervention. These 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 any time 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 Administration 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.

Printed Name_____   Date_____

Signature_____   Date_____

Video Release Form

As noted above, I will be making video recording of your child during participation in the research. Please indicate what uses of these video tapes you are willing to permit, by putting your initials 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.

Printed Name_____   Date_____

Signature_____   Date_____

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