2016-06-01

The Effects of a Social Communication Intervention on the Production of Emotion Words for Children with Language Impairment

Emilee Anne Longmore
Brigham Young University

The Effects of a Social Communication Intervention on

the Production of Emotion Words for Children

with Language Impairment

Emilee Anne Longmore

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

Master of Science

Martin Fujiki, Chair
Bonnie Brinton
Barbara Culatta

Department of Communication Disorders

Brigham Young University

June 2016

ABSTRACT

The Effects of a Social Communication Intervention on
the Production of Emotion Words for Children
with Language Impairment

Emilee Anne Longmore
Department of Communication Disorders, BYU
Master of Science

Many school-age children with a diagnosis of Language Impairment (LI) also have social communication difficulties. Some of these difficulties are related to deficits in emotion understanding. This thesis evaluates the effects of a social communication intervention designed to increase the production of emotion-based words as an indicator of emotional competence. For five elementary school-aged children with LI, the production of emotion-based words was analyzed by first determining the frequency of words produced in preintervention sessions for the following categories: *happiness, sadness, anger, fear, surprise,* and *disgust*. Following these measures, the participants received 20 intervention sessions over the course of treatment. Treatment involved the use of narratives to address emotion recognition and inferencing abilities. Individual analyses for each participant, including percent of nonoverlapping data (PND), were conducted for each participant in the categories of *anger, fear,* and *surprise,* to determine the effects on the production of emotion-based words during the intervention. The results for each participant and emotion category varied greatly, but each participant demonstrated improvement in the PND for at least one emotion category. These results were promising and underscore the value of social communication intervention for children with LI in the area of emotion understanding.

ACKNOWLEDGMENTS

I wish to express my gratitude to Dr. Bonnie Brinton, Dr. Barbara Culatta, and Dr. Martin Fujiki for providing such excellent feedback and input as I have written this thesis. The provided expertise and guidance have been invaluable not only to this thesis, but to my own personal development as a student and as an individual. Thank you, especially, to Dr. Fujiki for your guidance throughout the data collection and analysis process. Your generous encouragement and counsel has helped me not only to complete this project, but to develop a genuine interest and passion for research in this field. I would not have succeeded in completing this thesis without help provided from each of you.

I wish to thank those who assisted me in collecting and coding data from the intervention sessions, those who assisted with videography of the sessions, and the clinician who administered treatment to each of the children. I also wish to thank the participants in this study, not only for the data and insight provided by you, but for the opportunity to enjoy your bright personalities as I coded and analyzed your sessions. It truly was a joy watching the sessions and I admire so much your positive attitudes despite the hard work required of you.

I wish to express a special thanks to my friends and roommates, who have not only supported me and encouraged me in my work, but have and still constantly offer me food, much-needed movie nights, and more love and fun than I ever thought possible. Your patience and friendship have helped me through countless nights of editing, researching, and feeling completely lost. Your positive support has taught me that persistence and celebration can and should co-occur as much as possible.

To my parents and siblings, I want to thank you most of all for encouraging me and supporting me in my pursuit of a higher education, and providing reassurance that anything is

possible with sacrifice and a willingness to work. Not only have I accomplished my goals and followed my dreams, but I have been able to set even greater goals and dream greater dreams than I ever imagined were possible for myself. Thank you for your incredible and unceasing patience in all of my pursuits. I could never ask for more inspiring or more selfless people to stand by me in my endeavors.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

DESCRIPTION OF THESIS CONTENT

This thesis is written in a hybrid form that integrates current journal publication format with the traditional thesis format. This includes updated university requirements for submission and the requirements for submitting research reports to peer reviewed journals in communication disorders. Appendix A includes an annotated bibliography. Appendix B contains a coding manual used to analyze the production of emotion-based words. Appendix C contains the results of analysis of the mean productions of emotion-based words for baseline, intervention, and follow-up sessions.

Introduction

Social communication can be defined as "the ability to use language in interpersonally appropriate ways to influence people and interpret events" (Olswang, Coggins, & Timler, 2001, p. 53). As such, this broad definition covers interactions such as approaching peers, participating in conversations, resolving conflicts and a variety of other exchanges in which individuals participate daily. Motivated by the developing desire for social interaction, a child must not only develop structural language abilities, but also a variety of pragmatic and social understanding abilities to effectively communicate with others (Fujiki & Brinton, in press; Timler, 2008). This paper addresses intervention with one aspect of social communication: the production of words to express basic emotions.

Components of Social Communication

Social communication can be broken down into three integral parts that often overlap. These three components are social understanding and interaction, language processing, and pragmatics (Adams, Lockton, Gaile, Earl, & Freed, 2012).

Social understanding and interaction. Within the category of social understanding and interaction are behaviors that tap into the "understanding of social communication conventions and behaviors, mediated through language" (Adams, Lockton, Gaile, et al., 2012, p. 247). This includes abilities such as processing nonverbal cues, inferencing, regulating and understanding emotion, and perspective-taking (Adams, 2013; Fujiki & Brinton, in press; University of Manchester, n.d.). Social adaptation, or the ability to modify social behavior to fit various contexts, and understanding the experiences of others also fall within this subcomponent (Anderson & Beauchamp, 2012; Fujiki & Brinton, in press). These skills are each critical to forming friendships and reciprocal relationships (University of Manchester, n.d.).

One example of this type of ability is theory of mind, which is the ability to "reflect on the knowledge, thoughts, and beliefs of others" in addition to "one's own thoughts, beliefs, and intentions" (Westby, 2014, p. 278). Affective, or emotional, theory of mind, specifically, is similar to emotion understanding, or the ability to understand one's own and other people's emotions (Fujiki & Brinton, in press). Theory of mind is built on an earlier developing social interactional ability called intersubjectivity, or the sharing of emotions and experiences, which develops as intention and desire for shared experiences increases (Adams, 2005; Fujiki & Brinton, in press). Deficits in social understanding and interaction abilities are most often seen in the earliest stages of development and may be foundational to problems in the remaining two subcategories of social communication: pragmatics and language processing (Fujiki & Brinton, in press).

Language processing. Language processing encompasses the structural aspects of language, such as form and content, which are basic to the "production and comprehension of language" (Fujiki & Brinton, in press, p. 10). Such abilities include active listening for comprehension of language at the discourse level and sequencing discourse during interaction, and involve semantic and grammatical competence (Adams, 2013; University of Manchester, n.d.). Although targeting this area in isolation may increase performance in individual language processing abilities, addressing these behaviors in combination with other components in a "larger communicative context" is ideal to yield improvement in overall social communication (Adams, 2005; Adams, Lockton, Gaile, et al., 2012; Fujiki & Brinton, in press).

Pragmatics. Pragmatics refers to conversational behaviors such as turn-taking and topic manipulation, conveying communicative intent, and interactional rules for appropriate social exchanges (Adams, Lockton, Gaile, et al., 2012; Fujiki & Brinton, in press; University of

Manchester, n.d.). These behaviors include building and implementing appropriate vocabulary and using language within social interactive contexts (Adams, 2013). Behaviors that are more typically classified under other social communication subcategories such as social understanding and interaction (e.g., theory of mind) often influence pragmatic abilities. However, these behaviors themselves are not generally considered as pragmatic abilities, making this particular component challenging to define (Fujiki & Brinton, in press; Gallagher, 1990).

Summary. The three components described above (social understanding and interaction, language processing, and pragmatics) must develop and function together for an individual to understand and share meaning with others. As such, they establish the basis for effective communication. As an individual's social contexts expand and become more complex throughout development, deficits in one or more of these areas may contribute to significant impairments in overall communicative and social abilities (Adams, 2005; Adams, Lockton, Gaile, et al., 2012; Fujiki & Brinton, in press).

Social Communication Deficits and Language Impairment

The interdependent nature of social communication abilities is manifest in the presence of deficits that arise as a result of a variety of etiologies, many of which are complex (Timler, Olswang, & Coggins, 2005). An example of interdependence is demonstrated by children who have deficits in language processing. These children are often classified as having a Language Impairment (LI) (Adams, 2005; Fujiki & Brinton, in press).

Early research suggested that children with LI often demonstrated difficulty participating in conversations when compared to peers of the same age. Some of the observed pragmatic difficulties included problems with the ability to initiate turn-taking, to maintain topics of interest, to ask and respond to appropriate questions, and to implement conversational repairs

when appropriate (Brinton & Fujiki, 1982; Brinton, Fujiki, & Powell, 1997; Brinton, Fujiki, & Sonnenberg, 1988; Conti-Ramsden & Friel-Patti, 1983). Later work revealed a number of problems that could more accurately be categorized under the broader label of social communication. Examples of difficulties that children with LI experienced included entering ongoing interactions (Brinton, Fujiki, Spencer, & Robinson, 1997; Craig & Washington, 1993; Liiva & Cleave, 2005), negotiating with peers (Brinton, Fujiki, & McKee, 1998), and dealing with conflicts (Fujiki & Brinton, 2015; Horowitz, Jansson, Ljungbert, & Hedenbro, 2005).

Recently, there is growing evidence that some individuals with LI have social communication difficulties in the area of social and emotional learning (Fujiki & Brinton, in press; Gerber, Brice, Capone, Fujiki, & Timler, 2012). These social and emotional limitations ultimately impact a child's experiences, opportunities, and relationships, all of which contribute to the child's quality of life (Adams, 2005). Examples of weaknesses in the fundamentals of social and emotional learning that may contribute to social problems are the inability to read emotion from facial expression (Spackman, Fujiki, Brinton, Nelson, & Allen, 2006), recognize prosodic cues, (Fujiki, Spackman, Brinton, & Illig, 2008), infer emotional responses from common scenarios (Ford & Milosky, 2003) or know when an experienced emotion should be hidden for social purposes (Brinton, Spackman, Fujiki, & Ricks, 2007). All of these weaknesses follow under the general heading of emotion understanding.

Whatever the source of the social interactional difficulties of children with LI, these individuals often experience problems performing basic social communication tasks. As a result, children with LI experience negative social outcomes such as social withdrawal, reticence, low self-esteem, and victimization (Fujiki & Brinton, 2015; Gerber et al., 2012). Social and

emotional learning deficits may inhibit effective social communication, which in turn is likely to impact social relationships and future academic abilities (Fujiki & Brinton, in press).

Language Impairment and Social Communication Intervention

Treatments designed to improve language form and content in isolation are not likely to impact social communication abilities (Fujiki & Brinton, 2015; Gerber et al., 2012). Thus, it would be ideal to target problematic social communication behaviors directly. The number of studies that have examined the efficacy of social communication interventions with children with LI is relatively limited, however. Illustrative of this fact is that as of 2008, there were only 8 studies that addressed the efficacy of these interventions with children diagnosed with LI between the ages of 6 and 11 years (Gerber et al., 2012). Since that time, additional studies have been performed, including a randomized controlled trial, but the number is still relatively small. The following studies are presented as examples of work done more recently to examine the social communication skills of children with LI.

Fujiki, Brinton, McCleave, Anderson, and Chamberlain (2013) implemented a social communication intervention with four children diagnosed with LI, using a case study design. This intervention was designed to increase the production of positive, validating comments in these children as they interacted with peers. Baseline data consisted of measures of social competence (sociometric measures of peer acceptance and friendship, and teacher ratings of sociability), and three 20-minute cooperative learning sessions, in which the children participated in various learning activities and their validating comments were analyzed. Three of the children received a total of forty 15-minute sessions, and one child received twenty 30-minute sessions. The total period of intervention was 10 weeks. The design of the intervention outlined three types of sessions to be completed each week for each child: learning about behaviors in group

instruction, targeting behaviors in role-play and games with peers, and review of the behavior with the clinician. The validating comments produced during the peer play sessions were used for data monitoring and analysis (Fujiki et al., 2013).

The results of this study revealed a significant increase in the production of validating comments for one child, and a less dramatic improvement for two other participants. In follow-up sessions, all of these children maintained the gains made during the intervention. Little improvement was made by the remaining participant. Teacher reports indicated that two of the children demonstrated improvement in sociable behavior, however, no significant changes in friendship and peer acceptance were noted for any of the participants during the time the children were followed (Fujiki et al., 2013).

An example of implementation of a social communication intervention for preschool-aged children was conducted by Stanton-Chapman and Snell (2011) using a multiple-baseline design. This study involved 10 preschoolers with disabilities, specifically targeting turn-taking skills, initiations and responses in conversation, and conversational repairs and revisions through a systematic technique of teaching communication and play skills. Intervention sessions were based on various dramatic play themes with corresponding narratives; these components facilitated teaching of targeted behaviors through role-play and modeling communication strategies within the stories. Sessions were approximately 20-25 minutes long, with each session divided into three parts: (a) "advanced play organizer" (instruction), (b) "play session" (practice), and (c) "review session" (review of targeted skill) (Stanton-Chapman & Snell, 2011 p. 306).

This intervention used percent nonoverlapping data (PND) to determine effectiveness of treatment for each of the children. This analysis demonstrated not only promising effects of the treatment, but also the variability of response to treatment across individual participants. In

regard to increasing the rate of initiations with a peer response, this intervention was determined to be highly effective (PND = 90% or greater) for five children, moderately effective (PND = 70%-90%) for three children, and mildly effective (PND = 50%-70%) for two children. This intervention was also highly effective for one child, moderately effective for three children, mildly effective for two children, and ineffective (PND = less than 50%) for four children in improving turn-taking skills (Stanton-Chapman & Snell, 2011).

A similar study was conducted by Stanton-Chapman, Denning, and Jamison (2012) evaluating the turn-taking abilities of preschoolers with disabilities. This study also used a multiple-baseline design, and included eight children. Dramatic social play themes were also used in this study in combination with narratives to help teach and practice turn-taking. Baseline and intervention sessions were structured after the pattern of the previously mentioned study, including the components of instruction, practice, and review. Results using PND indicated that each of the eight children demonstrated gains in initiations with immediate peer response across intervention. Intervention was mildly effective for two participants, moderately effective for three participants, and highly effective for three participants. Following intervention, assessments showed that although the effects of the intervention did not demonstrate generalization in classroom settings, the effects were maintained under the same conditions as the baseline. Although these studies resulted in various levels of effectiveness for each participant, they also demonstrate potential social benefits of teaching specific social behaviors within a socially interactive context (Stanton-Chapman et al., 2012).

Perhaps the most notable intervention that has been conducted with children within the general category of LI was performed by Adams and colleagues at the University of Manchester (Adams, Lockton, Freed et al., 2012; Adams, Lockton, Gaile, et al., 2012). Adams and

colleagues designed a social communication intervention for use with children with Pragmatic Language Impairment (PLI). Children with PLI demonstrate increased difficulty in pragmatic abilities relative to grammatical and phonological skills, resulting in social impairments that are often associated with autism spectrum disorder (ASD). This intervention was designed to investigate the impact of interventions targeting specifically language and social communication needs of the participants (Adams, Lockton, Gaile, et al., 2012).

This study was designed as a single-blind randomized control trial, with 88 participants who were currently receiving speech and language therapy. Participants assigned to receive the social communication intervention (SCIP) received 20 direct therapy intervention sessions. Preceding, immediately following, and six months following intervention, teacher-reported ratings of classroom skills, parent-reported evaluation of pragmatic and social communication abilities, blind-rated perceptions of conversational competence, and the primary and secondary outcome measures of structural and narrative language were taken to monitor the progress of each participant. These primary and secondary outcome measures did not reveal any significant treatment effect. However, the blind-rated perceptions of conversational competence, parent-reported measures, and teacher-reported ratings all showed significant treatment effects (Adams, Lockton, Gaile, et al., 2012).

The inability to demonstrate structural growth may have been related to the specific assessment measure used, the Clinical Evaluation of Language Fundamentals-4 (CELF-4; Semel, Wiig, & Secord, 2003). In this particular assessment, a significant difference in standard score can come about only by way of a dramatic change in raw scores. Thus, the measure could be relatively insensitive to moderate improvements in language structure. Additionally, the participants in this study demonstrated functional difficulties with language as indicated by

teachers and parents that resided outside the scope of the CELF-4, and therefore, the participants' language abilities and deficits did not appear to be fully represented by the CELF-4 scores. Finally, some children with PLI presented in the typical range across language tasks apart from pragmatics and social communication. Improvement to this and subsequent similar studies requires increased sensitivity in objective measures, particularly with high-level language individuals (Adams, Lockton, Gaile, et al., 2012).

Purpose of Current Study

The social communication intervention implemented in this study was specifically designed to address the social communication abilities of elementary school-age children with LI. More specifically, the purpose of this study was to determine the efficacy of an intervention to produce increases in the type, context, and frequency of emotion-based words from baseline to follow-up assessments. Five participants diagnosed with LI participated in the intervention, which was delivered using a multiple baseline single-subject design. The following research question was addressed: Can a social communication intervention increase the production of emotion words produced by children with LI?

Method

Overview of the Intervention

This thesis was part of a larger research project designed to examine the effectiveness of a social communication intervention for five children with LI. The goal of this thesis was to determine the impact of the intervention on the production of emotion-based words for each of the five participants. A single-subject multiple-baseline design was employed to compare participants' use of emotion-based words pre- and post-treatment and throughout intervention. Specifically, the emotions *happiness, sadness, anger, fear, surprise,* and *disgust,* were evaluated.

Participants

Five children (4 girls, 1 boy) participated in this intervention, with ages ranging from 5;11 to 10;1 (years;months). These children were recruited from a local elementary school via the speech-language pathologist. At the time of the intervention, each participant had a diagnosis of LI and was already receiving speech and language services in the school setting. One participant was identified as having borderline ASD, according to previous diagnoses and reports. The IQ scores of all participants fell within the typical range based on standardized measures administered by a school district psychologist. Pure tone hearing screenings revealed hearing within the typical range for all participants, as tested by the school district speech-language pathologist.

The Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel et al., 2013), and the Children's Communication Checklist-2 (CCC-2; Bishop, 2006) were administered to the participants. The results of these tests are presented in Table 1. Additionally, the Teacher Behavior Rating Scale (TBRS; Hart & Robinson, 1995) was administered to provide a measure of social functioning. These results are presented in the individual participant profiles below.

In addition to the social and language assessments mentioned above, each child was presented with a variety of tasks to probe emotion understanding. These included identifying the emotion expressed on pictures of faces and inferring the emotion experienced by a character in a short scenario. In the facial identification of emotion task, the children were presented with pictures of faces conveying the emotions of happiness, sadness, anger, fear, disgust, and surprise. The Matsumoto and Ekman (1988) photos of faces expressing various emotions were used in this task. To assess the children's ability to infer emotions from short scenarios, a modified version

of Ford and Milosky's (2003) inferencing task was used (see Spackman, Fujiki, & Brinton,

2006). These results are presented in the individual participant profiles below.

Table 1

Children's Communication Checklist-2 (CCC-2; Bishop, 2006) and Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel et al., 2013) Scores

Assessments	Participants and Percentiles				
	SS	ALK	ADK	MK	JS
CELF-5[1]					
Core Language Percentile	2	2	23	14	7
CCC-2[2] Subtests					
Speech	1	1	1	1	37
Syntax	0	9	1	1	2
Semantics	0	5	1	2	2
Coherence	1	2	16	2	2
Initiation	0	50	37	25	16
Scripted Language	1	25	37	50	50
Context	1	25	16	2	3
Nonverbal Communication	1	16	9	1	4
Social Relations	5	16	37	1	6
Interests	1	50	91	25	11
GCC[3] Percentile	1	4	2	1	4
SIDI[4]	5	15	36	12	7

Note. [1]Clinical Evaluation of Language Fundamentals-5 (CELF-5). [2]Children's Communication Checklist (CCC-2). [3]General Communication Composite. [4]Social Interaction Difference Index.

Individual Participant Profiles

     SS. SS (9;6) was a Caucasian male who was diagnosed with LI upon enrollment in second grade at a public elementary school, having previously been homeschooled. Prior to this diagnosis, SS was diagnosed with high functioning autism by a pediatrician at age 5, and by a neuropsychologist at age 8. However, reports from his kindergarten teacher and educational team did not agree with the diagnosis of autism. Upon enrollment in public school, SS received speech

and language services to address articulation and language goals, and was enrolled in special education services. SS was diagnosed with specific learning disorder (SLD) at age 9;5, by a school-based assessment team.

During this study, SS attended both a mainstream 3rd grade class and a self-contained resource class. Previously established speech and language goals included topic manipulation, fluency, and improving the grammatical construction of sentences. SS fell below the 5th percentile on each subtest of the CCC-2, and his CELF-5 core language score fell in the 2nd percentile. SS's school clinician reported that although he demonstrated interest in social interaction, his ability to adapt behavior and respond appropriately to comments of peers and teachers was problematic. He was impulsive at times. Specific difficulties in social interaction included identifying and understanding nonverbal communication, voice inflections, and facial expressions.

In preliminary testing, SS demonstrated difficulty recognizing the emotions of surprise and disgust on pictures of faces. He also had difficulty inferring when a person would experience the emotions of fear, surprise, and disgust. Administration of the TBRS (Hart & Robinson, 1995) indicated notably poor performance in two aspects of social behavior: withdrawal and sociability. SS demonstrated high levels of three subtypes of withdrawn behavior: solitary active, solitary passive, and reticence. He also produced notably poor scores on two sociable subscales: likeability and prosocial behavior.

ALK. ALK (10;1) was a Caucasian female diagnosed with LI. ALK received this diagnosis in preschool, following an evaluation which revealed a variety of concerns with language structure. At age 8, reading support was added to existing goals following cognitive and academic testing which indicated a specific learning disability (SLD). At the time of the

current study, in addition to receiving resource services for reading, ALK's speech and language goals included improving articulation and complex syntax. ALK's clinician reported that she was capable of making friends and participating in social interactions with peers, but she had difficulty inferencing and inferring the emotional reactions of others. Semantic and syntactic deficits contributed to decreased verbal expression. Her scores on the CCC-2 indicated difficulty with nonverbal communication, social relations, and structural language, and her score on the CELF-5 fell in the 8th percentile.

In preliminary testing, ALK demonstrated difficulty recognizing the emotions of fear and disgust on pictures of faces. She also had difficulty inferring when a person would experience the emotions of surprise and disgust. Administration of the TBRS (Hart & Robinson, 1995) indicated that ALK demonstrated high levels of two subtypes of withdrawn behavior: solitary active and reticence. She also produced notably poor scores on two sociable subscales: likeability and prosocial behavior.

ADK. ADK (7;11) was a Caucasian female, diagnosed with LI and SLD in kindergarten. ADK began receiving speech and language services to address articulation and oral language goals, and became enrolled in resource to address additional written language goals. At the time of this study, she was in 2nd grade, and received special education services for reading support. ADK's CCC-2 scores revealed particular difficulty with nonverbal communication, structural language, and coherence. ADK's CELF-5 core language score fell in the 23rd percentile. Her clinician reported that she was very talkative and able to maintain conversational topics, but generally did not add novel material to conversation. Specific social communication abilities ADK demonstrated difficulty with were inferencing/predicting in conversations, and interpreting listeners' responses.

In preliminary testing, ADK demonstrated difficulty recognizing the emotions of anger, surprise, and disgust on pictures of faces. She also had difficulty inferring when a person would experience the emotions of anger, surprise, and disgust. Administration of the TBRS (Hart & Robinson, 1995) indicated notably poor performance in withdrawal and sociability. ADK demonstrated high levels of all three subtypes of withdrawn behavior: solitary active, reticence, and solitary passive. She also produced notably poor scores on the two sociable subscales, likeability and prosocial behavior.

MK. MK (6;7) was a Caucasian female, who was initially diagnosed with LI and SLD in kindergarten. As a result of this diagnosis, MK attended resource to address written language and math goals and also received speech and language services. At the time of the study, she attended both a mainstream 1st grade class and a self-contained resource class with additional reading services. Her speech and language goals at this time targeted both language and articulation. CCC-2 scores indicated deficits in the areas of social relations, nonverbal communication, and language structure. MK's CELF-5 core language score fell in the 14th percentile. Her school clinician reported that she spoke quietly, and was often delayed and incomplete in responses to others. MK had particular difficulty with topic maintenance and conversational initiation, and responding to the emotions of others.

In preliminary testing, MK demonstrated difficulty recognizing the emotions of sadness, fear, surprise, and disgust on pictures of faces. She also had difficulty inferring when a person would experience the emotions of sadness, fear, surprise, and disgust. Administration of the TBRS (Hart & Robinson, 1995) indicated notably poor performance in all three subtypes of withdrawn behavior: solitary active, solitary passive, and reticence. She also produced notably poor scores on the two sociable subscales: likeability and prosocial behavior.

JS. JS (5;11) was a Caucasian female who was initially diagnosed with developmental delay (DD)[1], attention deficit hyperactivity disorder (ADHD), and LI. At age 4, JS received an evaluation which revealed significant delays in receptive and expressive language, social-emotional development, and cognitive ability at the special needs preschool she was attending. At the time of the current study, JS's diagnosis indicated LI. She received resource services for speech and language services and reading support, and attended a mainstream kindergarten class. Speech and language goals at the time included improving overall language and articulation. Her CCC-2 scores revealed deficits in nonverbal communication, social relations, semantics, and coherence. Her CELF-5 core language score fell in the 7th percentile. JS's clinician reported deficits in attention and topic maintenance, in addition to inappropriate response to questions and comments.

In preliminary testing, JS demonstrated difficulty recognizing the emotions of sadness, fear, anger, surprise, and disgust. She also had difficulty inferring when a person would experience the emotions of fear, anger, surprise, or disgust. Administration of the TBRS (Hart & Robinson, 1995) indicated notably poor performance in all three subtypes of withdrawn behavior: solitary active, solitary passive, and reticence. The TBRS also indicated poor performance for both types of sociable behavior: likeability and prosocial.

Intervention Procedures

A single subject, multiple baseline design was employed to evaluate the intervention. Under the supervision of two doctoral level speech-language pathologists and the school speech-

---

[1] It was school district policy that all children identified as qualifying for early intervention services received an initial diagnosis of developmental delay.

language pathologist, a graduate student clinician administered each treatment session. Each treatment session consisted of a modified story enactment procedure to promote emotion understanding abilities, such as emotion recognition and expression. The intervention plan consisted of approximately 20 sessions. Sessions were typically twice a week, and lasted between 15-30 minutes in length. The intervention sessions took the place of the child's school therapy during the course of the study. The sessions were conducted at the elementary school and were video recorded for post intervention analysis.

Each participant received between three and six baseline sessions, during which the child was presented with a textless picture book from the Mercer Meyer series, *A Boy, A Dog, and A Frog.* With this book, the child was asked to describe the events of the story and the emotional experiences of the characters to the clinician. This particular series was selected because the books have illustrations depicting characters with easily identifiable emotions via facial expression and body language but no written text. The absence of text allowed the participants to demonstrate their ability to tell the story without having to try to read the words on the page. Two participants received three baseline sessions, while the other three children received six baseline sessions.

The intervention was structured as follows. At the beginning of each session, the participant was given the opportunity to retell the story discussed in the previous session. Following this retell, the clinician presented a new story and guided the participant through an exploration of the story events and emotional experiences of the characters. During this initial reading, the clinician followed a flexibly structured script, emphasizing emotion labeling, inferencing, and the cause and effect nature of emotions. Next, the child and clinician engaged in an interactive role-play, in which the child took on the role of various characters using props

such as stuffed animals and small toys. During this enactment, the child was encouraged to examine various thoughts, actions, and emotions experienced by the selected character while staying within the story's framework.

Following the story enactments, participants created an entry in a personalized journal (three-ring binder and notebook paper) by either writing or drawing a summary of the events of the selected story and social concepts targeted throughout. The participants were prompted to relate characters to events in their own lives with similar emotions for each journal entry. This journal also contained an area in which the participants were asked to identify emotions that were presented and identified during the telling of the story. As the intervention plan progressed, the structure of each session varied, and steps were often completed in different orders or simultaneously.

Analysis

Since the purpose of this study was to determine the effects of the social communication intervention on the production of emotion-based words, analysis consisted of coding participant use of emotion-based words that fell within particular emotion categories. All emotion-based words produced during individual sessions were coded. The emotional categories included in coding were *happiness, sadness, anger, surprise, fear,* and *disgust*. These categories are described as basic emotional and physiological states in young children by Dunn, Bretherton, and Munn (1987). Each of the sessions recorded for the five participants were coded for the production of words in the specified emotion categories.

Emotion-based words produced by the participants were categorized according to their relation to the presented emotion categories (e.g., *sad*, *lonely*, and *gloomy* were all considered correct productions for the category of *sadness*). These categorical relationships provided for

analysis of the number of words produced in each category. Adjectives (e.g., *silly, weird)* and expletives and interjections (e.g., *Wow!*), were not included in coding. Verbs such as *like* and *love* and other verbs expressing preference were considered correct productions for the related emotion category (*like* and *love* were included in the category of *happiness*). A category labeled "other" was considered to house emotion-influenced productions that were not easily defined using the six categories presented (e.g., "bored"). However, such productions were infrequent throughout the intervention. Because of the relatively small number of occurrences in some of these categories, for presentation purposes, the categories were collapsed.

Coding of contexts of elicitation required each emotion word to be assigned one of four contexts: imitated, cued, spontaneous, and in response to question. If the targeted emotion word was produced within five seconds following production of the same word by the clinician, it was coded as imitated. Phonological and visual prompts were coded as elicitation in a cued context. An emotion-based word that was not preceded by the provision of questions or prompts was considered a spontaneous production. The emotion word was coded as in response to a question if elicited by a specific question regarding how a particular character or individual was feeling. A detailed coding manual is presented in Appendix B.

Preliminary analysis suggested that the number of productions of emotion-based words in each category varied between sessions and participants. Because of this, the frequency of production of emotion-based words (as opposed to percentage of appropriate usage) in appropriate contexts provided an indication of growth, while also making variations in production clear. For this reason, the baseline, follow-up, and intervention sessions were evaluated for the frequency of emotion-word productions. Although intervention sessions evaluated the amount of productions throughout various tasks, the baseline and follow-up

measures evaluated only the Mercer Mayer stories to compare the quantity of preintervention emotion-based words produced to postintervention words produced within a similarly structured context.

Coding Reliability

Two graduate research assistants (of which the author was one) at Brigham Young University of Communication Disorders Department analyzed the data produced during baseline, intervention, and follow-up sessions. To establish interrater reliability, the two investigators initially coded approximately 10% of the sessions independently and then compared data for agreement. Interrater reliability was established at 93% between the two research assistants.

<div align="center">

Results

</div>

For each session, the frequency of emotion-based words produced was calculated and productions were coded according to the following six categories of emotion: *happiness, sadness, anger, fear, surprise,* and *disgust*. For the purposes of this study, the categories of *anger, fear,* and *surprise* were examined. Preliminary probes revealed that the children demonstrated good command of the production of words in the *happiness* and *sadness* categories, and they demonstrated little knowledge and understanding of *disgust*, which was not a focus of intervention. For this reason, these categories were excluded from further analysis.

The frequency of productions for each of these categories is presented in Figures 1 through 3. The frequency counts per session allowed for an examination of the participants' use of emotion-based words with support within a structured setting from session to session. Percentage of nonoverlapping data (PND) was calculated to provide a measure of the efficacy of the intervention. In addition, the mean number of productions during the first 10 sessions was

compared to the mean number of productions during the second 10 sessions to aid in interpretation of the data (these data are presented in table form in Appendix C).

Anger

Frequency counts for *anger*-based words produced by each participant during the intervention sessions are presented in Figure 1. All of the children produced some growth during intervention, but there was a fair amount of variability between participants. MK and ADK showed the least amount of change during intervention. ADK produced anger based words at a relatively consistent level during the intervention, producing a mean of 5.8 for the first 10 sessions and 4.7 for the second set of 10 sessions. MK's production of *anger*-based words increased slightly during the latter 10 sessions, increasing from a mean of 2.2 productions to 2.6 productions. The PND was 35% for ADK and 38% for MK, which indicated ineffectiveness of treatment for this emotion category from baseline to intervention sessions.

SS and JS showed growth over the course of intervention, but with only mild increases above baseline. SS produced a general increase in *anger*-based words, increasing from a mean of 4.8 for the first 10 sessions, to 8.7 for the remaining 10 sessions. JS's production of anger words changed from a mean of 1.8 per session during the first half of the intervention to a mean of 3.3 for the second half. The PND for SS was 65%, and 68% for JS, which indicated that treatment was mildly effective for this particular emotion.

For ALK, production of emotion words generally increased across initial sessions, and tapered off somewhat during the latter half of treatment. The calculated PND for ALK was 70%, which indicated that despite this tapering effect across intervention, the treatment was moderately effective for this participant. Treatment was most effective for this participant compared to other participants for *anger*-based words.
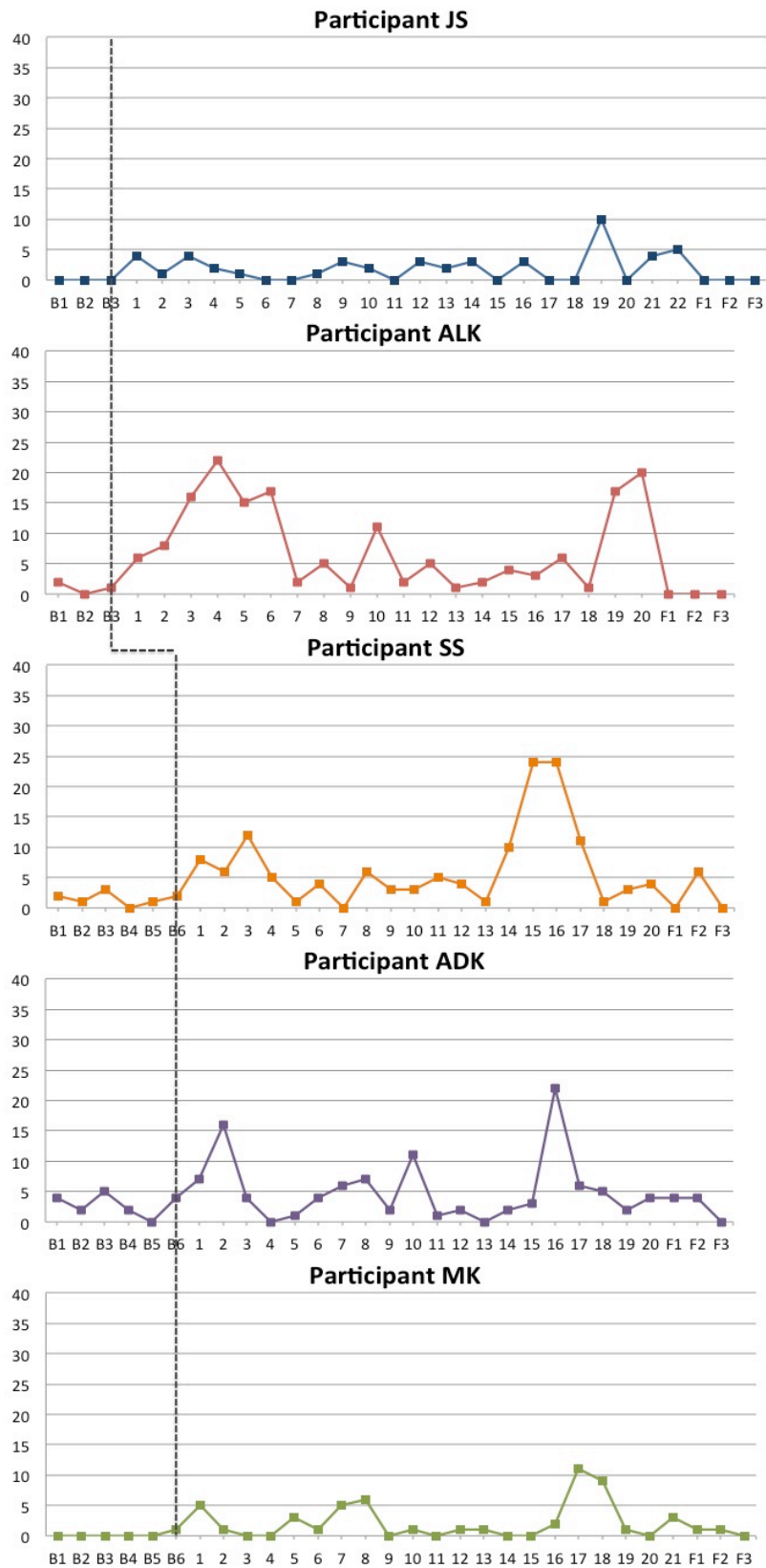
Figure 1. Frequency of anger-based productions per session.

Fear

Frequency counts for *fear*-based words produced by each participant during the intervention are presented in Figure 2. In general, children showed the largest gains in the production of *fear* words. Few productions of *fear* words were observed during baseline, but all of the children showed increases during treatment. For example, JS produced *fear* words with a mean of 3.5 within the first 10 sessions of intervention, which increased to 6.11 for the second set. ADK's production increased from a mean of 7.7 productions for the first 10 sessions to 10.7 for the second 10. PND for JS for *fear*-based words was 68%, indicating mild effectiveness of treatment, and the PND for ADK was 85%, which indicated moderate effectiveness.

SS and ALK also showed general increases over the course of the intervention. SS produced *fear* words with a mean of 8.7 within the first 10 sessions of intervention, which increased to 10.5 for the second 10. ALK's productions increased from a mean of 5.6 productions to 19.3. The PND for SS for *fear*-based words was 90%, and 100% for ALK, demonstrating a high level of effectiveness for both of these individuals.

MK's production of *fear*-based words decreased slightly over the course of intervention, moving from a mean of 6 productions per session in the first half of treatment to a mean of approximately 5.6 in the second half. However, her general increase from baseline was encouraging. The calculated PND for MK for *fear*-based words was 90%, which indicated a high level of effectiveness of the treatment. Despite these observed gains, only ADK and SS produced *fear*-based words in the follow-up sessions.
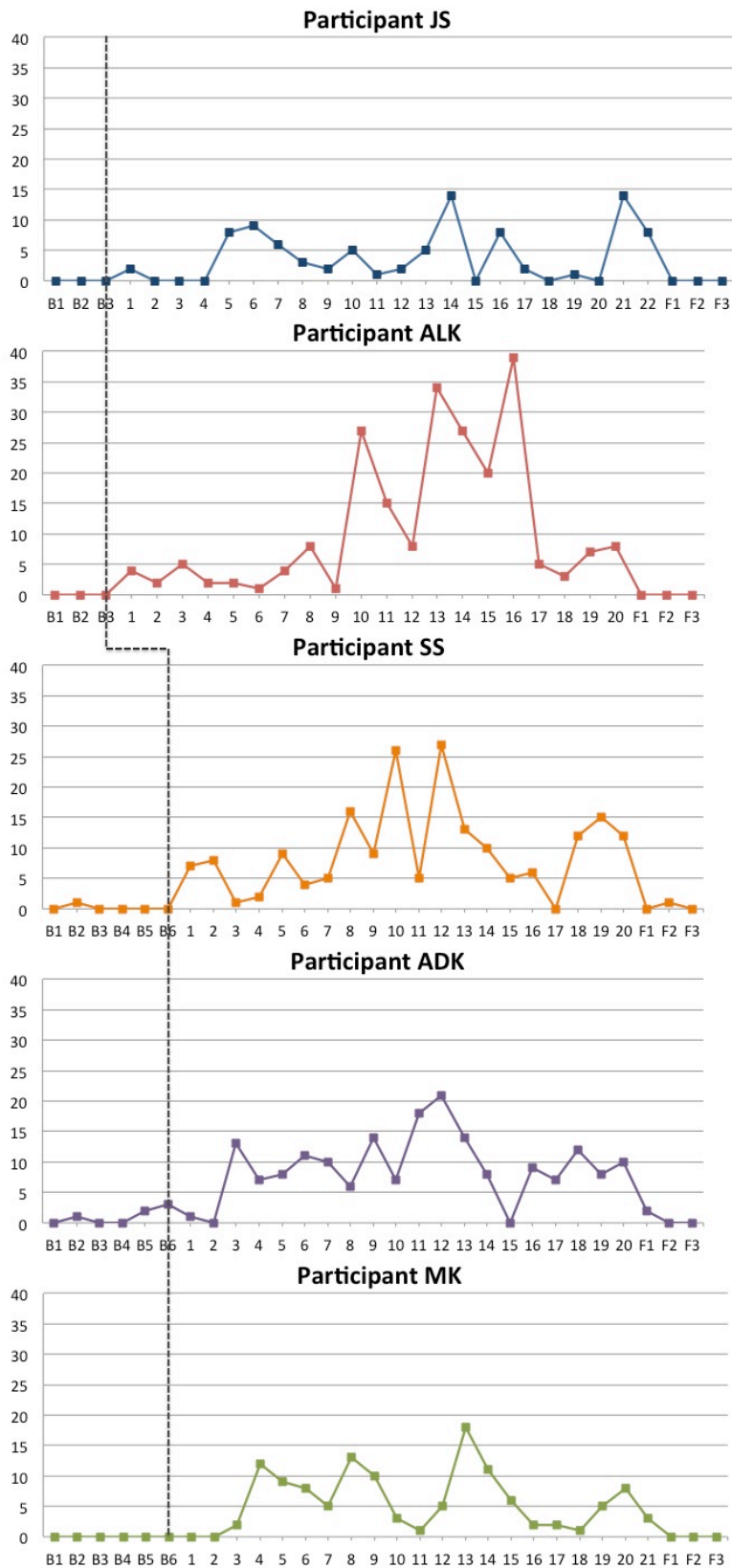
Figure 2. Frequency of fear-based productions per session.

Surprise

Frequency counts for *surprise*-based words produced by each participant during the intervention are presented in Figure 3. One of the children, ADK, had a PND of 45%, which indicated that treatment was not effective. ADK's productions throughout treatment were highly variable, and she did not produce *surprise* words during follow-up sessions. Two of the children, MK and JS, showed relatively little change during the intervention. The calculated PND for MK was 57%, and the PND for JS was 55%, which indicated mild effectiveness of treatment.

SS showed some growth, indicated by occasional sessions with good production of *surprise* words, despite a limited number of *surprise* words during baseline sessions. In treatment, SS's productions were highly variable, perhaps reflecting his engagement with the particular story used in the intervention. SS's PND for *surprise*-based words was 65%, indicating mild effectiveness of treatment. SS did not produce *surprise*-based words during the follow-up sessions.

ALK showed the most consistent levels of production during intervention. She did not produce any *surprise* words during baseline. She produced more surprise words during the first half of the intervention, with a mean production of *surprise* words of 7.3 productions per session. This decreased somewhat to 6.3 for the second half of the treatment, but production levels were still good. The PND calculated for ALK was 90%, indicating a high level of effectiveness of treatment. ALK did not produce *surprise* words spontaneously during the follow-up sessions.
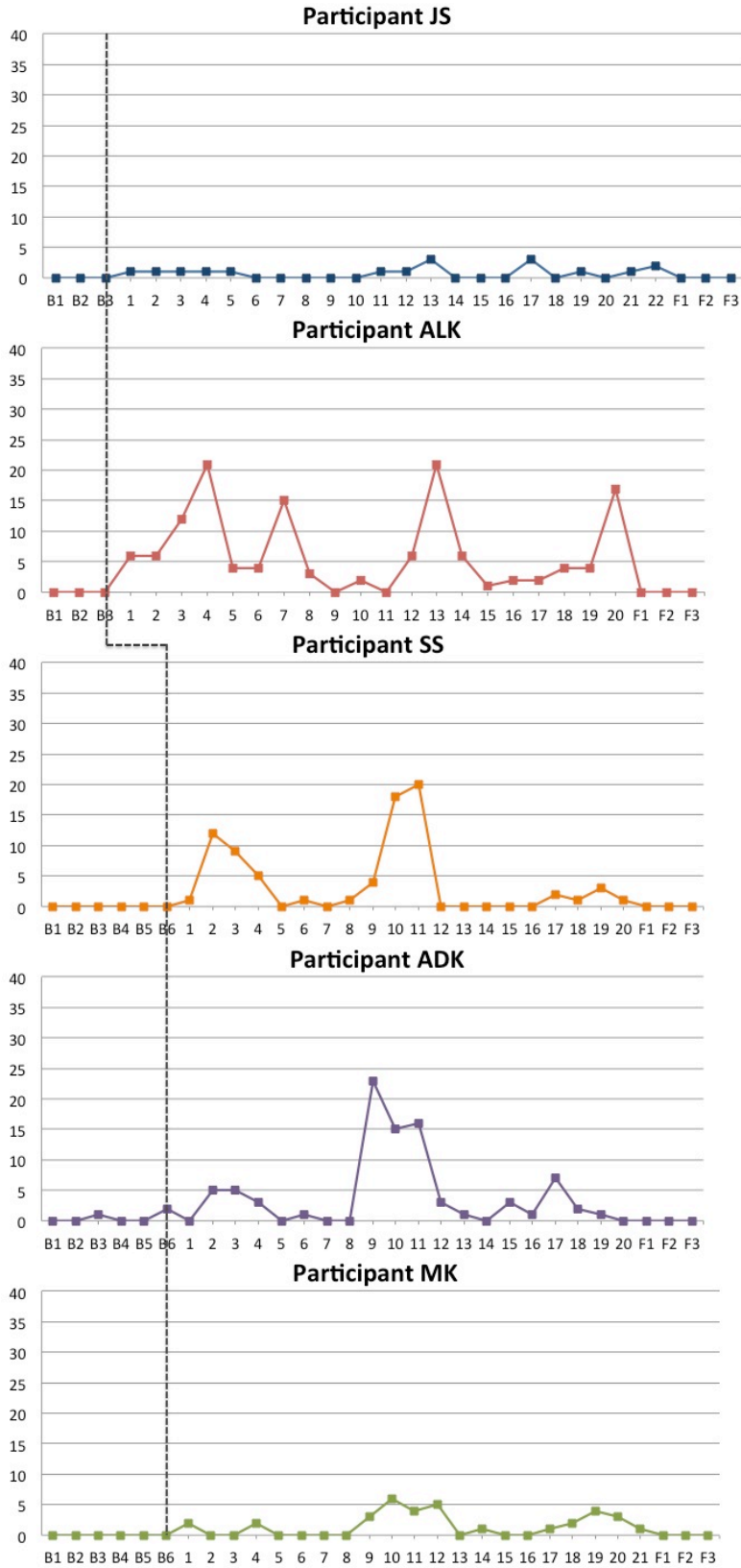
Figure 3. Frequency of surprise-based productions per session.

Discussion

Children with LI often demonstrate difficulty participating in conversations (Brinton & Fujiki, 1982; Brinton, Fujiki, & Powell, 1997), entering ongoing interactions (Brinton, Fujiki, Spencer & Robinson, 1997), negotiating with peers (Brinton, Fujiki, & McKee, 1998), and dealing with conflicts (Horowitz et al., 2006). Difficulties extend to social and emotional limitations, which ultimately impact quality of life (Adams, 2005). Weaknesses in the fundamentals of social and emotional learning include reading emotion from facial expressions (Spackman et al., 2006) and inferring emotional responses (Ford & Milosky, 2003). However, a relatively limited number of recent studies have examined the efficacy of a social communication intervention implemented to address the mentioned social and language needs of school-age children with LI (Gerber et al., 2012).

This study investigated the efficacy of a social communication intervention to increase the production of emotion-based words and facilitation of emotion understanding in children with LI, specifically focusing on the emotion-based categories of *anger*, *fear,* and *surprise.* Five children with a diagnosis of LI and documented social communication difficulties participated in the study, each child falling between the ages of 5;11 and 10;1 years. The TBRS and CELF-5 were administered prior to implementation of the intervention program to provide consistent measures of language and social functioning for each participant. The frequency of production of emotion-based words during baseline, intervention, and follow-up sessions were analyzed for changes occurring as a result of this intervention. The results of the five participants in the study are discussed in the following section.

Individual Findings

      JS. In follow-up measures, JS did not demonstrate changes in the frequency of spontaneous production of emotion-based words for any of the three emotions. Throughout intervention, JS's production of emotion words for any given session remained relatively low in frequency compared to most other participants. However, she was the only participant to increase in the average production of targeted words in comparison of means from the first half of intervention to the second half in all three emotion categories.

      Of the three emotions, JS generally produced a higher frequency of words in the *fear* category, followed by *anger,* and finally, *surprise* throughout the intervention sessions. PND calculations were 68% for *fear,* 54% for *surprise*, and 68% for *anger*, which indicated that treatment effectiveness from baseline to intervention sessions demonstrated mild effectiveness for all three emotions. These percentages indicate that this intervention was generally the least effective for this participant across all categories. It may be the case that the intervention was not effective for JS, or that more sessions were required for JS to demonstrate greater growth. Further investigation is also required to determine whether the emotion knowledge demonstrated by JS would eventually generalize into less structured contexts for each of the emotion categories.

      ALK. Throughout the intervention sessions, ALK consistently produced high frequencies of words from each emotion category relative to the other participants, with her most dramatic increase in mean productions of *fear* words as the intervention progressed. This increase was relatively consistent, as ALK did not demonstrate much difference in the productions of *anger* or *surprise* in the first and second half of the intervention.

PND calculations were 100% for *fear* and 90% for *surprise*, indicating that the treatment was highly effective for these emotion categories. The PND was 70% for *anger*, indicating the treatment was moderately effective from baseline to intervention sessions. Of all of the children taking part, these percentages indicated that the intervention was most effective for this participant. Further intervention is required to determine whether the effectiveness of this intervention will increase, and whether the child's gains in emotion understanding will generalize into less structured contexts for each of the emotion categories.

ADK. Although follow-up measures did not demonstrate improvement in spontaneous production of words for any of the three emotion categories, ADK was the only participant to produce emotion-based words within each category in baseline and follow-up sessions. Throughout intervention sessions, ADK also demonstrated an increase in the mean production of *fear*-based words in comparison of the first and second halves of treatment, but averages decreased across intervention for *anger* and *surprise.*

PND calculations were 85% for *fear,* 45% for *surprise*, and 35% for *anger*, indicating the treatment ranged from ineffective to moderately effective from baseline to intervention sessions, for two of the emotion categories. These findings suggest that further intervention is required to determine whether the effectiveness of this intervention would increase over a longer period of time, and the extent to which generalization to more spontaneous production would occur.

MK. Baseline to follow-up data of spontaneous productions of emotion-based words demonstrated only slight improvement for *anger,* and no changes were demonstrated for *fear* or *surprise*. Throughout intervention, MK consistently produced a low frequency of emotion-based words relative to the other participants, most comparable to JS. PND calculations were 90% for *fear,* which indicated high levels of effectiveness for this category. PND calculations were 45%

for *surprise*, and 35% for *anger*, indicating ineffectiveness of treatment for these two emotions. These findings suggest that further intervention is required to determine if this intervention would be effective for MK.

SS. Throughout the intervention sessions, SS's productions of emotion-based words remained at a consistently high frequency relative to other participants, similar to ALK. SS demonstrated increases in *anger* and *fear* in the comparison of means from the first and second half of the intervention sessions, but demonstrated a decrease in *surprise.* SS was one of the only participants to demonstrate gains, though slight, in the average follow-up productions compared to baseline productions, specifically for *anger* and *fear*.

PND calculations for SS were 65% for *surprise* and *anger*, indicating moderate effectiveness of treatment for these two emotion categories. However, the PND for *fear* was 90%, indicating a high level of effectiveness. As with the other participants, intervention was promising but will require implementation across a longer period of time to determine if effectiveness would increase, remain stable, or decrease.

Conclusions

For each of the emotions and throughout treatment, the degree of gain varied across participants. Of the five children, three demonstrated gains in the mean production of emotion-based words within a supportive context for at least two emotion categories, while all five participants demonstrated gains within at least one category. Examination of baseline and follow-up data, which considered the spontaneous productions of emotion-based words, revealed that only two participants demonstrated gains, though slight, in at least one emotion category. Each of the other three participants either demonstrated no changes, or slight decreases in

frequency of productions. However, the number of productions within these periods was relatively small compared to the amount elicited during treatment sessions.

According to PND calculations, *fear* was the emotion category with the highest levels of effectiveness across participants. Four of the five participants demonstrated at least moderate gains in *fear* words. Across intervention, the emotion category with the lowest levels of effectiveness, according to PND calculations, was *anger*. Of the participants, ALK generally demonstrated the highest levels of consistency across the intervention, with effectiveness levels ranging from moderate to high for each emotion category. JS demonstrated the lowest PND levels, with effectiveness levels ranging from ineffective to mildly effective.

Although each participants' performance from session to session within the emotion categories varied across the intervention period, and follow-up data of spontaneous productions did not reveal dramatic improvements, the data collected from within the intervention context is encouraging. However, further research is required to determine whether prolonged implementation of these methods would facilitate the generalization of the spontaneous production of emotion-based words.

Limitations of the Study

The following limitations may have impacted the findings. Although similar tasks were administered for each participant from session to session, each session was loosely scripted requiring the examiner to make adjustments to fit the needs of each participant. Such adjustments included varying amounts and types of cueing and complexity of specific words introduced. Other variables related to the procedures of the sessions were session length and the amount of sessions implemented for each participant. Although each session lasted approximately 20 minutes, some sessions were slightly longer or slightly shorter than this allotted time, which may

have had an impact on the results of the study. Although these inconsistencies were infrequent throughout the therapy, they should be taken into consideration as possibly having some impact on the final results.

The baseline and follow-up sessions were designed to elicit spontaneous productions of emotion-based words using textless picture books. However, spontaneous productions during these tasks generally fell between the range of 0-5 productions, with little to no change seen in follow-up data for any of the participants. Thus, these data did not allude to gains in the production of spontaneous, emotion-based words as a result of this intervention. Although these data may appear to be limited in describing gains in knowledge and understanding of social and emotional abilities, the frequency of productions that occurred throughout the intervention sessions and PND calculations were useful in this case to analyze gains made in contexts with supported elicitation. This information is important because it provides insight into the acquisition of knowledge and vocabulary base with support for elicitation, which could be considered as an intermediate step toward spontaneous production. Further studies investigating emotion-word production with this particular social communication intervention should take this into account, as a means of informing the refinement of the intervention.

Another limitation of this study was the variability between and within the participants. Because of the unique sets of social and language deficits present for each child with LI, this particular intervention likely affected the behavior and performance of each individual child in varying ways and to varying degrees. Some examples of factors that likely contributed to overall success of the intervention from session to session for each participant were the level of attentiveness and degree of participation. For some participants, these levels were generally consistent, and for others, these factors led to highly variable levels of engagement and success

in the tasks presented. A variety of co-occurring factors such as these are common among children with a diagnosis of LI, which contribute to the wide spectrum of social abilities and deficits presented by this population. Catering to these differences, while still maintaining consistency in the intervention, is challenging but necessary if procedures are to be delivered in a reliable and replicable manner.

Directions for Future Research

Although this study's results did not yield large gains in spontaneous productions of emotion-based words within the provided baseline and follow-up contexts, participant performance during the intervention were promising. To more effectively investigate the impact of this intervention on the production of emotion-based words, and further, its effect on social behavior, future studies should collect similar data over a longer period of implementation. In addition, the analysis of the interaction of this and other similar social communication interventions with a greater number and variety of profiles of children with LI will provide greater understanding of how different individuals respond to the intervention. In addition to these considerations, future studies exploring these social communication interventions would benefit from comparisons of the participants with LI to a control group receiving traditional treatment.

In addition to these areas of study, examining the components that made up this intervention and their effects on each participant could be of value. Throughout this intervention, certain tasks were more engaging and helpful for some participants compared to others, and some elicitation methods were more helpful for some participants than for others. Examining the intervention from the perspective of individual students may aid in fine-tuning supportive methods.

As mentioned previously, this study was only one piece of a larger project designed to improve social communication in children with LI. This particular study examined the production of emotion-based words. Pursuing a variety of channels designed to investigate these abilities through direct and indirect methods will provide a more complete and descriptive basis for the development of general and individualized social communication interventions. Exploring different methods of measuring this ability in addition to the participant reaction to intervention will help to link specific abilities and deficits with elicitation methods and measures of competence.

Summary

The performance of the children throughout the intervention provided promising evidence that the intervention provided an effective context for learning emotion words. Performance in follow-up sessions indicated that the children did not yet demonstrate generalization to spontaneous productions within the intervention period. Additional sessions/intervention periods are likely required to demonstrate effectiveness in contributing to overall improvement in social communication. Future research should include modifying and adjusting treatment scripts, involving control groups, and assessing the interaction of the treatment's components on each individual child to support conclusions verifying the effectiveness of this intervention.

References

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

Adams, C. (2013). *An evidence-based programme for school aged children.* [PowerPoint slides]. Retrieved from http://sites.psych-sci.manchester.ac.uk/scip/projectoverview/-conferencepresentations/ASLTIPmarch2013.pdf

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 disorders. *International Journal of Language & Communication Disorders*, *47*, 233-244. doi:10:111/j.1460-6984.2011.00146

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

Anderson, V., & Beauchamp, M. H. (2012). SOCIAL: A theoretical model of developmental social neuroscience. In V. Anderson & M. H. Beauchamp (Eds.), *Developmental social neuroscience and childhood brain insult* (pp. 3-20). New York, NY: Guilford Press.

Bishop, D. V. M. (2006). *The Children's Communication Checklist* (2nd ed.). London: Harcourt Assessment.

Brinton, B., & Fujiki, M. (1982). A comparison of request-response sequences in the discourse of normal and language-disordered children. *Journal of Speech and Hearing Disorders*, *47*, 57-62.

Brinton, B., Fujiki, M., & McKee, L. (1998). Negotiation skills of children with specific language impairment. *Journal of Speech, Language, and Hearing Research*, *41*(4), 927-940. doi: 10.1044/jslhr.4104.927

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*(1), 3-11. doi: 10.1044/0161-1461.2801.03

Brinton, B., Fujiki, M., & Sonnenberg, E. A. (1988). Responses to requests for clarification by linguistically normal and language-impaired children in conversation. *Journal of Speech and Hearing Disorders, 53*, 383-391.

Brinton, B., Fujiki, M., Spencer, J. C., & Robinson, L. A. (1997). The ability of children with specific language impairment to access and participate in an ongoing interaction. *Journal of Speech, Language, and Hearing Research*, *40*(5), 1011-1025. doi: 10.1044/jslhr.4005.1011

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

Conti-Ramsden, G., & Friel-Patti, S. (1983). Mothers' discourse adjustments to language-impaired and non-language-impaired children. *Journal of Speech and Hearing Disorders, 48,* 360-367.

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

Dunn, J., Bretherton, I., & Munn, P. (1987). Conversations about feeling states between mothers and their young children. *Developmental Psychology*, *23*, 132-139. doi: 0012-1649/87/S00.75

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

Fujiki, M., & Brinton, B. (2015). Assessment and intervention for children with language impairment. In D. A. Hwa-Froelich (Ed.), *Social Communication Disorders* (pp. 220-251). New York, NY: Psychology Press.

Fujiki, M., & Brinton, B. (in press). Social communication intervention. In R. McCauley, M. E. Fey, & R. Gillam (Eds.), *Treatment of language disorders, 2nd Ed*. Baltimore, MD: Brookes Publishing.

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

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

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

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

Hart, C. H., & Robinson, C. C. (1995). *Teacher Behavior Rating Scale*. Unpublished questionnaire. Brigham Young University, Provo, UT.

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

Horowitz, L., Jansson, L., Ljungberg, T., & Hedenbro, M. (2006). Interaction before conflict and conflict resolution in pre-school boys with language impairment. *International Journal of Language and Communication Disorders, 41*(4), 441-466.

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

Matsumoto, D., & Ekman, P. (1988). *Japanese and Caucasian facial expressions of emotion (JACFEE) and neutral faces (JACNeuF)*. Unpublished manuscript. San Francisco.

Olswang, L. B., Coggins, T. E., & Timler, G. (2001). Outcome measures for school-age children with social communication problems. *Topics in Language Disorders*, *22*(1), 50-73.

Semel, E. M., Wiig, E. H., & Secord, W. (2003). *Clinical evaluation of Language Fundamentals-4*. San Antonio, TX: Psychological Corporation.

Semel, E. M., Wiig, E. H., & Secord, W. (2013). *Clinical evaluation of Language Fundamentals-5*. San Antonio, TX: Psychological Corporation.

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 and Communication Disorders, 41*, 173-188.

Spackman, M., Fujiki, M., Brinton, B., Nelson, D., & Allen, J. (2006). The ability of children with language impairment to recognize emotion conveyed by facial expression and music. *Communication Disorders Quarterly*, *26*, 131-143. doi:10.1177/15257401050260-030201

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

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

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

Timler, G. R., Olswang, L. B., & Coggins, T. E. (2005). "Do I know what I need to do?" A social communication intervention for children with complex clinical profiles. *Language, Speech and Hearing Services in Schools*, *36*(1), 73-85. doi:10.1044/0161-1461(2004/007)

University of Manchester. (n.d.). Social communication intervention project (SCIP). Retrieved

    from http://sites.psych-sci.manchester.ac.uk/scip/interventionprogramme/

Westby, C. (2014). Theory of mind and language development and disorders. *Topics in*

    Language Disorders, *34*(4), 277-281. doi:10.1097/TLD.0000000000000034

APPENDIX A:

Annotated Bibliography

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

Purpose of the Study

    In this article, Adams notes that there is a growing need for speech and language
intervention for school age children with social communication difficulties, which she describes
as a set of deficits rather than a single diagnostic label. The rationale behind the intervention
described in this article is framed upon four interrelated aspects of social communication: social
interaction, social cognition, pragmatics, and language processing.

Method

    Participants. The participants in the single-case design study described in this article
were six school-age children between the ages of 6;0 and 9;11 with pragmatic language
impairment (PLI). The case of one participant (age 8;1) who is described to demonstrate
significant deficits in all four mentioned aspects of social communication was described more
explicitly.
    Procedures. Each participant received 24 therapy sessions using the social
communication intervention framework as a guide for the structure of each session.

Analysis and Results

    The progress of each child's progress post-intervention was measure analyzed using
parent and teacher reports. Significant gains in conversational skills that appeared to be
generalized both at home and at school were made by the participant, however, some pragmatic
deficits persisted. Other gains noted following this intervention were recall and sentence
formulation, with less dramatic gains in inferencing and narrative comprehension.

Conclusions

    The interdependence of the four key elements of social communication provide the
theoretic foundation for the social communication intervention framework described in this
article. Although this framework requires more systematic testing for efficacy in a large-scale
study and with diverse populations, the model can provide guidance for intervention across
diagnostic boundaries.

Relevance to the Current Work

    This article states that social communication is made up of many elements, many of
which elements are deficient in children with communication disorders. The current study uses

emotion words as a way of measuring emotion understanding/emotional intelligence, which falls under the social cognitive element of social communication.

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 disorders. *International Journal of Language & Communication Disorders*, *47*, 233-244. doi:10:111/j.1460-6984.2011.00146

Purpose of the Study

This study examines the effectiveness of intensive social communication intervention (SCIP) on the language, pragmatic, and social communication needs of children with pragmatic language impairment (PLI), with or without features similar to those seen in autism spectrum disorder (ASD).

Method

Participants. This study was a single-blind randomized control trial design, with 88 children who demonstrated pragmatic and social communication needs. These participants fell between the ages of 5;11 and 10;8, and were already receiving speech and language therapy.
Procedures. The participants were assigned in a 2:1 ratio to SCIP or typical treatment sessions. The SCIP program consisted of 20 sessions of direct therapy from a research speech-language therapist working with assistants. Methodology of and material for therapy sessions were derived from an intervention manual. Pre-intervention, a primary outcome measure of structural language and secondary outcome measures of narrative skills, parent-reported pragmatic functioning, blind-ratings of perceptions of conversational competence, and teacher-reported ratings of classroom skills were taken. These same measures were taken immediately following intervention, and six months following treatment.

Analysis and Results

This study did not reveal significant treatment effect for the primary outcome measure of structural language skills or for measures assessing narrative ability. However, significant treatment effects were found for the blind-rated perceptions of conversational competence, parent-reported measure of pragmatic abilities, and teacher-reported ratings of classroom learning skills.

Conclusions

This study provided some evidence of an effect of SCIP on blind and parent or teacher reported measures of social communication skills, but lacked evidence provided by standardized language assessments within this population. The evidence provided demonstrated the need for measures beyond standardized assessments, such as service user outcomes, to provide evidence for efficacy of intervention.

Relevance to Current Work

The current study similarly analyzes the effects of a social communication intervention among the school-age population of children with language impairment (LI). The Adams et al. study provides evidence supporting the collection and analysis of data beyond the scope and sensitivity of currently available standardized assessments, such as the production of emotion-based words, to provide insight into the efficacy of the treatment for the participants.

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

Purpose of the Study

The purpose of this study was to examine the efficacy of intensive manualized social communication intervention (SCIP) on language, pragmatic, and social communication skills in children with a diagnosis of LI. This study was the first small-scale randomized controlled trial designed to investigate the effectiveness of intervention for children with PLI.

Method

Participants. There were 88 participants included in this study, 29 of which were randomly assigned to treatment as usual (TAU), and 59 were randomly assigned to SCIP. The children fell between the ages of 5;11 and 10;8 years. All participants attended mainstream primary education and were currently enrolled in speech and language services, spoke English as primary language, did not have the diagnosis of ASD, exhibited pragmatic communication problems, and did not demonstrate evidence of difficulties in emotional and behavioral development, intelligibility, or hearing.

Procedures. This study used a randomized controlled trial design. Children included in the SCIP received approximately 20 sessions of intervention one hour in length, up to three times weekly. An intervention manual provided therapy content and methodology. Outcome measures were taken pre-intervention, immediately following intervention, and 6 months following treatment.

Analysis and Results

Linear and logistic regression analyses were done on outcome measures with adjustment for age. The CELF-4 Core Language Standard Score (CLSS) was used as a primary outcome measure, and the secondary outcome measures included the Targeted Observation of Pragmatics in Children's Conversation (TOPICC), the Children's Communication Checklist (CCC), the Expression, Reception and Recall of Narrative Instrument (ERRNI), and a Parent-Reported Outcome (PRO) measure and a Teacher-Reported Outcome (TRO) measure.

The standardized measure of overall language performance and narrative ability did not show significant intervention effect, however significant effects were found for the intervention

using the TAU, observed conversational abilities, teacher and parent-reported social communication skills, and pragmatic functioning at the 6-month follow-up.

Conclusions

The intervention analyzed in this study demonstrated effectiveness in improving overall conversational quality, but not structural language skills, in children with pragmatic and social communication deficits between the ages of 6 and 11 years. Teacher and parent perceptions revealed improvement in functional pragmatic and social communication skills in the home and classroom. This study demonstrated potential for some improvement within a short period of intervention, although some children may require increased length for the intervention period. Improvement in skills varied widely among individual children.

Relevance to the Current Work

The social communication intervention in this study was implemented for children with pragmatic language impairment, which group overlaps with the LI population targeted in the current study. Although the children in this study did not demonstrate gains via the primary outcome measures, they made significant gains according to reports from teachers and parents before, during, and after intervention. The current work will also measure gains via measures other than standardized assessment, such as frequency of emotion-based words to measure improvement in social communication skills.

Anderson, V., & Beauchamp, M. H. (2012). SOCIAL: A theoretical model of developmental social neuroscience. In V. Anderson & M. H. Beauchamp (Eds.), *Developmental social neuroscience and childhood brain insult* (pp. 3-20). New York, NY: Guilford Press.

Purpose of the Work

This chapter examines the development of social skills and the impact of disruptions to the development of social skills on a child's quality of life. Social neuroscience is defined and research investigating theories behind the dimensions of social competence in "at-risk" populations.

Summary

Human thoughts and actions are significantly dictated by human consciousness, which is formed upon social skills and interactions. Social skills are critical to forming relationships and functioning within outer social circles, thus, social deficits greatly impact quality of life. Social neuroscience is the study of the functions that make up social cognition or social function. Study of this may help establish the conceptual foundation for general and social cognition, as these are currently not fully understood. Prior research in this area has lacked theoretical foundation, especially in attempting to investigate "at-risk" populations. The social information processing (SIP) model describes several problem-solving stages to social situations, and allows the isolation of individual deficient stages in order to target specific skills for support. Multidimensional paradigms are important to provide understanding for of social function as it

emerges throughout child development. The socio-cognitive integration of abilities model (SOCIAL) provides the core elements of social skills, and addresses biological and environmental influences on the development of social skills.

Social skills are made up of social competence, social interaction, and social adjustment. The development of social skills may be inhibited by disorders and severe medical conditions, and can occur directly from the condition or as a secondary consequence. These social skills can often be overlooked and undertreated by medical professionals and parents. There is limited epidemiological data regarding social deficits. Children with social problems are at higher risk for delinquent behaviors later in life.

Infants demonstrate an orientation toward social communication even early in development. As the child reaches communication milestones, cognitive and physiological functions develop in association with them. This early social development is a precursor for later, more complex social cognition. In adolescence, there is more dramatic neurostructural, environmental, biological, and cognitive changes which also affects the development of social communication. SOCIAL assumes that social skill development is dependent on maturation of all of these areas. The first component of SOCIAL represents factors that shape social function emergence, and the second refers to the abilities of the child. SOCIAL proposes that both components are interrelated behaviorally and neutrally. There are external and internal factors that form the environmental factors that influence social communication.

Many subskills within the SOCIAL domains can be assessed using standardized measures. These measures, however, have some restrictions in scope of assessment and sensitivity toward targeted skill. General social outcomes, such as questionnaires and rating scales have received more attention toward tapping into specific skills. Further research is required to develop tools that adequately assess these social skills and how those tools might guide interventions.

Conclusions

SOCIAL is a potential framework for assessing and examining the dimensions and components that make up social competence, including environmental and biological factors. Disruption of the development of these factors can lead to disruption in social function throughout childhood and persist into adulthood. Developing measures that tap into each aspect of SOCIAL will provide a way of obtaining a systematic view of social function and how it develops typically and atypically.

Relevance to the Current Work

Children with LI, such as the children included in the current study, demonstrate deficits in social competence. These deficits affect social relationships, which can persist into adulthood. The current study will examine and work toward developing an effective social communication intervention for developing social competence.

Brinton, B., Fujiki, M., & McKee, L. (1998). Negotiation skills of children with specific language impairment. *Journal of Speech, Language, and Hearing Research*, *41*(4), 927-940. doi: 10.1044/jslhr.4104.927

Purpose of the Study

The purpose of this study was to examine the participation of children with specific language impairment (SLI) in negotiating and joint decision making within a group. The frequency of participation in the tasks by these children and negotiation strategies were examined, in addition to developmental level of strategies used.

Method

Participants. There were 54 participants included in this study, each falling between the ages of 5 and 12 years of age. The target participants were six children with a diagnosis of SLI, six CA and six LS matches. The participants were separated into 18 triads. Each triad was composed of one target child and two partners. The partners they were grouped with were matched for gender and age. Three triads had all male subjects, and three had all female subjects.

Procedure. Each child within a triad earned poker chips during an activity previous to the examined interactions. Then, the children were presented various snacks, each marked with the number of chips required to purchase the snack item. The participants were given instructions to combine chips to purchase the snack items.

Analysis and Results

Analysis consisted of looking at the number of utterances produced by the children, identifying negotiating strategies and categorizing them into levels. Finally, the mean level of strategy production was determined for each triad. Results revealed that the target participants with SLI produced fewer utterances than the other triad members, and they were not influential in the negotiation interactions. The subgroup with SLI, according to post hoc analysis, produced a smaller percentage of strategies than the other subgroups. As complexity of strategies produced increased, incidence of productions of negotiation strategies by children with SLI decreased.

Conclusions

This study revealed that children with SLI were not as efficient at using verbal skills of the same sophistication as those used by typically developing children with the same age and similar life experience in social interactions. Interaction quality was reduced because of lack of age-appropriate strategies used.

Relevance to the Current Work

This study indicates that children with SLI have difficulty in negotiations during social interactions. Efficiency in these areas is essential to age-appropriate social competence. Social communication tasks such as negotiating with peers, are difficult for children with LI.

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*(1), 3-11. doi: 10.1044/0161-1461.2801.03

Purpose of the Study

This study examined the way children with SLI maintained two different kinds of conversational topics that were introduced to them by an adult investigator. One topic task consisted of the verbal introduction of an object, the other was the verbal introduction of an event.

Method

Participants. This study's participants consisted of 30 children, 10 of which had SLI, 10 typical children at the same chronological age level, and 10 typical children on a similar language level. All participants ranged from ages 4;3 to 7;4. These subjects with SLI demonstrated receptive and expressive language deficits on at least two standardized assessments. CA subjects were individually matched to children in the group with SLI for gender and age. LS subjects were individually matched to a child with SLI according to the TOLD2-P age equivalency score, and were considered to have generally similar language skills to the children with SLI.

Procedure. The subjects were presented with opportunities to maintain or develop topics introduced by an adult examiner. The examiner initiated the topics and allowed the child to develop the topics without feedback as to how to develop the topic. The examiner followed a script to initiate each interaction.

Analysis and Results

Analysis consisted of data collection from the first 2 minutes of each of the topic interactions for each child. Each utterance was transcribed word for word. Utterances were then counted and categorized according to relationship with topic. Utterances were sorted under the labels of maintaining the topic, introducing a new topic, or other, for unintelligible utterances. The children in the study varied in reticence and high levels of talkativeness. The range of utterances produced were largest for the group with SLI and smallest for the LS group. The subjects with SLI produced a mean number of utterances that was approximately twice that of the other groups. The majority of subjects across groups contributed utterances that appropriately maintained topics. Subjects with SLI produced significantly more inappropriate utterances in response to the topics than subjects in the other two groups.

Conclusions

This study revealed that children with SLI had difficulty with aspects of topic maintenance, which created a gap between them and other children with similar age and language levels. Children with SLI also demonstrated difficulty introducing new topics to the conversation following the topics introduced by the investigator. Specifically, they had difficulty establishing and maintaining these topics.

Relevance to the Current Work

The topic maintenance difficulties described in this study in children with SLI are indicative of deficits in social communication. These difficulties are similar to the social communication deficits experienced by the subjects of the current study. The implications of this study provide support for outcome measures other than standardized assessment measures to monitor the progress and improvement in social communication of the subjects.

Brinton, B., Fujiki, M., & Sonnenberg, E. A. (1988). Responses to requests for clarification by linguistically normal and language-impaired children in conversation. *Journal of Speech and Hearing Disorders, 53*, 383-391.

Purpose of the Study

The purpose of the current study was to investigate the way children diagnosed with LI and their typically developing age-matched peers and language-matched peers responded to sequences of neutral clarification requests within spontaneous interactions. The types of verbal repair responses in response to stacked sequences of neutral clarification requests, the types of nonverbal responses that accompanied verbal repairs in each group, and the differences in responses according to language level, impairment, type, and position of the request in the sequence were considered.

Method

Participants. There were 24 participants in this study, eight of which were diagnosed with LI, with eight age-matched and eight language-matched peers. There were four boys and four girls within each of the three groups (within the ages of 7;6-11;1 years). All of the subjects with LI were enrolled in speech and language interventions at the time of the study. All children with LI also demonstrated typical nonverbal intelligence levels.

Procedures. For each subject, a 30-minute language sample was elicited and video-recorded by telling the child that his/her opinion was needed to describe a variety of toys and events. The topics of conversation were Christmas vacation and television, movies. The child was allowed to pick out a prize following the elicitation of the sample. The examiner initiated 10 stacked clarification request sequences, 3 minutes apart.

Analysis and Results

The clarification requests elicited during the intervention were coded according to the verbal, gestural, and suprasegmental information gathered during analysis. Each response was coded into one of the following five categories: repetition, revision, addition, cue, and inappropriate. Gestural and suprasegmental categories were used for nonverbal responses. One analysis looked at the verbal responses to stacked sequences, and the other one looked at the gestural and suprasegmental information. Inappropriate responses increased for all subjects, but very few were produced by normal subjects in response to the probes, while the subjects with LI produced more inappropriate responses than either of the other two groups. Age-matched subjects produced more additions than the other two groups did. LI and language-matched peers

produced more revisions than their age-matched peers. The older, typical subjects produced more cued responses with each successive request. The younger typical subjects produced more cues with the third request. Subjects with LI produced few cue responses. The use of gestures and supplemental repairs increased as the sequence progressed for all groups (subjects with LI performed much like their peers).

Conclusions

The stacked sequence of clarification requests was effective in eliciting repair strategies from the participants. Each of the participants adapted to the feedback provided by listeners, however, there were differences among the groups, which were specifically tied to language abilities. Children with LI and children who were language-matched to those children used revision as the primary form of repair when compared to the chronologically aged-matched children, who used supplemental information to repair more often. Children with LI also produced more inappropriate responses than their peers, and some had difficulty completing the task.

Relevance to the Current Work

The study provides further evidence that children with LI have difficulty in interactions as compared to their typically developing peers.

Brinton, B., Fujiki, M., Spencer, J. C., & Robinson, L. A. (1997). The ability of children with specific language impairment to access and participate in an ongoing interaction. *Journal of Speech, Language, and Hearing Research, 40*(5), 1011-1025. doi: 10.1044/jslhr.4005.1011

Purpose of the Study

This study investigated children with SLI and their ability to participate in and enter ongoing interactions.

Method

Participants. There were 54 children included in this study, all between the ages of 5 and 12 years. Two peer-partners and one target subject made up each of 18 triads. Six triads containing a child with SLI, 6 trials containing children matched to the children with LI for chronological age, and 6 trials of children matched to the children with LI for language age, were the target participants. The two partners within each triad were matched to the target child for age and gender.

Procedures. All target children were instructed that they would be speaking with two other children for a 20-minute period prior to data collection. They were then introduced to the two peers who were already interacting. The time required by the target child to access the interaction was noted. Once the target child had accessed the group, the interaction then continued for 20 minutes.

Analysis and Results

For each interaction access was noted. The utterances produced during the subsequent interaction were transcribed and analyzed. Sixteen of the target children successfully accessed the conversation; however, the two children who did not access the conversation belonged to the group with SLI. Between the groups, the time needed to access the interaction was not significantly different. However, 9 of the CA and LS targets were able to do so in less than three minutes. All of the SLI groups took longer than three minutes, and the children with SLI produced the fewest number of utterances within their triad. In the subsequent interactions following access, children with SLI talked less and were talked to less by the other members of the triad. Similar differences were not observed in the triads consisting of typically developing language-matched and chronological age-matched peers.

Conclusions

This study indicated that accessing ongoing conversation was difficult for children with SLI, as was contributing to the interactions following access to the group.

Relevance to the Current Work

This study indicated that children with SLI have difficulty accessing and contributing to social interactions. The current study implements a social communication approach addressing social-language behaviors such as those suggested in this study in the population with LI. The current study also aims to refine the social communication approach implemented to most successfully support the development and improvement of social interactional skills.

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

Purpose of the Study

The purpose of this study was to examine the difference between a group of children with a diagnosis of LI and a group of typically developing children in their ability to dissemble emotion in social scenarios that required hiding true emotions in order to adhere to social rules.

Method

Participants. There were 38 participants in this study, all children between the ages of 7;9 and 10;10. Nineteen children with SLI were studied, in addition to a group of gender and age-matched typically developing peers were studied.

Procedures. A gender neutral character named "Chris" was introduced to the children within ten hypothetical social situations. These situations were created to illicit the emotions happiness, sadness, fear, anger, and disgust. Following the presentation of each situation, questions targeting the children's comprehension of the stories, the emotions, the need for

dissemblance, and their understanding of display rules were asked by the administrator of the situations.

Analysis and Results

Responses to the social situations presented were coded, followed by an analysis performed using a random effects logit model. This analysis was performed to determine differences between the groups of children. Both groups of children answered the comprehension questions correctly for the hypothetical situations, but children with SLI demonstrated more display strategies and fewer dissemblance strategies than their peers.

Conclusions

This study indicated that dissemblance of emotion was more difficult in children with SLI than typically developing children. Awareness of when the children should dissemble emotion did not differ significantly between the groups, as indicated by their responses to the question, "What would Chris's parents want him/her to do?"

Relevance to the Current Work

The emotion-recognition and emotion understanding difficulties indicated by this study are similar to the difficulties experienced by the population targeted in the current study, particularly in the specific social situations presented. The current study examines the effectiveness of a specific social communication intervention to address some of the emotion understanding difficulties of children with LI.

Conti-Ramsden, G., & Friel-Patti, S. (1983). Mothers' discourse adjustments to language-impaired and non-language-impaired children. *Journal of Speech and Hearing Disorders, 48,* 360-367.

Purpose of the Study

The purpose of the study was to investigate the discourse adjustments of mothers in their interactions with children who have LI compared to the adjustments of mothers in their interactions with children without LI. This study looks at two aspects of these interactions: communicative functions of the conversation and the child's performance in conversation. The aim of this investigation was to look at the role of mothers on children with LI and their language difficulties.

Method

Participants. There were 56 participants in this study, separated into 28 dyads (14 with mothers and children with LI, and 14 with mothers and children who did not have a language impairment). The participants fell within the age range of 3;6-5;4. In the group with LI, there were 11 males and 3 females, and in the group without LI, there were 6 males and 8 females. The groups of children were matched for mean length of utterance (MLU).

Procedure. This study followed a milieu therapy approach, which interactive milieu was set up to resemble naturalistic play. Each dyad was given the instructions to play as they normally did, and toys were scattered throughout the playroom without any other instructions. The session was 15 minutes long, and was videotaped. All of the participants engaged in play for at least 5 minutes; each video recorded sample was transcribed to include behavioral and verbal events. The transcriptions were coded using a system based on requestives, directives, assertives, regulatives, and responses. The system was comprised of two illocutions: meaning illocutions and cohesion illocutions.

Analysis and Results

The analysis of the language used in the interaction of the mother and child dyads included various collected frequency measures and their associated categorical independent variables. This study revealed that there were differences in the interactions of the mothers with the children without LI compared to the interactions of the mothers with the children with LI. Mothers with children with LI had to initiate conversation more than the other groups.

Conclusions

This study suggested that the mothers of children with LI have to adjust their conversational patterns to meet the needs of their children by initiating dialogue more often to maintain conversation than mothers with of children without LI. In this stage of development, mothers' modifications were well-suited for facilitating their children's participation in conversation. The absence of these strategies could have a detrimental effect on the interaction of children with LI in their interactions with their mothers.

Relevance to the Current Work

This study investigates the conversational skills of children with LI, specifically their interactions with their mothers and the adjustments that help to maintain such conversations. The current work analyzes the efficacy of a social communication intervention on a specific skill for children with LI. This particular study provides additional insight into the needs of children with LI and information that can be used in further research to support the development of social communication within this population,

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

Purpose of the Study

This study investigated the access behaviors of children diagnosed with SLI compared to the access behaviors of children who have typically developing language skills.

Method

Participants. There were 38 children included in this study. Thirteen of these children were subjects, and 25 children were partners. Five subjects were diagnosed with SLI, and 8 subjects were typically developing children. Four of the typically developing subjects were age-matched, and the other 4 were matched by language skills. These participants then interacted with two other typically developing peers, thus forming triads of interactants (partners were gender and age matched to subjects within the triads).

Procedures. Each subject was introduced to two partners who were already playing. They were then observed to see how long it would take them to enter the on-going play. Following the child entering the room, the examiner left the room for 20 minutes to provide additional observations.

Analysis and Results

Both verbal and nonverbal portions of the interaction were transcribed. Access opportunities were categorized as either successful or unsuccessful as determined by the outcome. Behaviors were also categorized as related or unrelated to the task. Successful access to play was determined if the subject took an un-rejected turn in play, with awareness of a partner. Unsuccessful access was determined when the subject did not take a turn during the session.

The typical children and two children with SLI accessed the interaction successfully, while three children with SLI unsuccessfully accessed in the interaction. These children's profiles indicated lower receptive language skills than the profiles of the other children with SLI who were able to access the interaction.

Conclusions

The only subjects in this study who were unable to access the interaction were subjects who were diagnosed with SLI. The authors suggest that the deficits revealed in this study in children with SLI will affect their ability to form friendships and social relationships similar to their typical peers. However, children with SLI who demonstrated better receptive language skills prior to the study were successful in accessing the interaction.

Relevance to the Current Work

This study examined social communication difficulties of children with LI. The current study targets a similar population.

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

Purpose of the Study

This study investigated the ability of children with LI and their typical peers to infer the emotions that would be experienced given a short scenario.

Method

   Participants. There were 24 participants included. Each participant was in kindergarten. Twelve children were diagnosed with LI, and the other twelve were typically developing and chronologically aged matched peers. Each of these groups contained six girls and six boys. To assess eligibility for participation in the study, the Clinical Evaluation of Language Fundamentals-Preschool (CELF-P) and the nonverbal subtests of the Kaufman Assessment Battery for Children (KABC) were administered.
   Procedures. Picture cards were used to depict the following different emotions: sad, mad, surprised, and happy. Emotional inferencing skills were evaluated using nine stories. The emotions and stories were presented in three different ways: visual only, verbal only, and visual and verbal at the same time. During the identification tasks, the child identified the emotions of the person depicted in each picture, and during the comprehension tasks, the child pointed to the emotion. To assess inferencing, the participants were presented with four drawings of facial expressions and stories revolving around a certain emotion. Then, the child was instructed to draw in the face that best fit the story.

Analysis and Results

   In the tasks that involved assigning labels to the emotions mad, sad, and happy, the group with LI and CA group demonstrated 100% accuracy. In addition, both groups demonstrated 100% accuracy for the comprehension task. When it came to making emotional inferences, the children with LI were not as accurate as the CA peers. In the visual and verbal combination task, the group with LI was more accurate than when only presented with visual stimuli, and they made more errors (including valence errors) when inferring emotions when compared to the performance of the control group.

Conclusions

   The authors speculated that children with LI demonstrated differences in their abilities to process social information when compared to their typically developing peers. Although the study showed that both the control group and the LI group demonstrated the ability to identify the four targeted emotions, the participants with LI were not able to infer emotion as well as the typical children.

Relevance to the Current Work

   This study is indicative of the difficulties experienced by children with LI as discussed in the current work. Specifically, the current work focuses on assessing the impact of social communication intervention on improving emotion understanding skills such as emotional inferencing.

Fujiki, M., & Brinton, B. (2015). Social communication assessment and intervention for children with language impairment. In D.A. Hwa-Froelich (Ed.), *Social communication development and disorders.* New York, NY: Psychology Press.

Purpose of the Work

The purpose of this chapter is to discuss the nature of social communication disorders in children with LI, the definition of social communication and its four foundational elements, the difficulties children with LI experience with social tasks and social outcomes, methods for assessments of social communication, and the effectiveness of interventions targeting social communication in this particular population.

Summary

There are a range of social communication tasks in which children with LI have difficulty, specifically tasks that require pragmatic skills, which can lead to negative social outcomes. Treating LI in a way that targets structural and pragmatic skills in addition to social and emotional behaviors is more effective than addressing these targets in isolation. The definition of social communication is difficult to describe with a simple explanation because of its complexity. Children with LI specifically have significant deficits in the language processing component of social communication. Social language problems and structural language problems can also co-occur within the broader category of LI, however, social communication problems can occur in this population without being linked to structural language deficits.
Specific social communication difficulties experienced by the population with LI are entering ongoing interactions, integrating one-self into the interaction, negotiating with peers, and resolving conflicts. These deficits go on to impact social relationships. The severity of LI is linked to deficits in sociable behavior. There are internal and external factors that influence the social outcomes of children with LI. Children with LI also experience difficulty with aspects of emotional intelligence, such as emotion understanding and emotion inferencing tasks.

Conclusions

Because of the interdependent nature of the elements that work together to form effective social communication, the authors believe that an intervention approach designed to target social communication behaviors in addition to structural language skills would be most desirable for children with LI.

Relevance to the Work

This chapter supports the use of a social communication intervention similar to that used for the LI participants in the current work by addressing the pragmatic, social, and emotional deficits beyond structural language skills experienced by children with LI.

Fujiki, M., & Brinton, B. (in press). Social communication intervention. In R. McCauley, M. E. Fey, & R. Gillam (Eds.), *Treatment of language disorders, 2nd Ed.* Baltimore, MD: Brookes Publishing.

Purpose of the Work

This chapter is centered on social communication intervention for children with LI. Social communication is defined, and its relationships to a variety of diagnoses are discussed, such as LI and social communication disorder.

Summary

Social communication arises from the interaction of four elements: social interaction, social cognition, pragmatics, and language processing. Research supporting social communication intervention is currently relatively limited, but data supporting such intervention is growing. Recently, several studies examine efficacy of this type of intervention have been conducted, including one randomized controlled trial. The goal of assessment of social communication is to provide a description of a child's social communication abilities and how well those abilities meet the social and emotional needs of the child. One source of information regarding these abilities is not sufficient, but rather the incorporation of several sources of information is ideal in providing a clear picture of the development of social and emotional behaviors and the factors influencing the behaviors. This approach to intervention provides information about the selection of treatment targets that are developmentally and realistically appropriate. This chapter describes in detail the development of these types of interventions, including considerations for children from culturally different linguistic backgrounds.

Conclusions

A social communication approach would involve looking at the broad scope of an individual child's communication abilities within his or her social world. This kind of approach must take into account the abilities, needs, and appropriate contexts for each individual child and multiple areas of development of social, emotion, and linguistic learning. Further research is required to develop an understanding of how best to target and monitor these skills and the efficacy of social communication intervention in the LI population at the school-age.

Relevance to the Current Work

A social communication intervention approach much like the type of intervention described in this chapter was used in the current work to target the structural language and social and emotional behaviors of school-age children with a diagnosis of LI.

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

Purpose of the Study

The purpose of this study was to present a pilot social communication intervention with school-age children with LI. The aim of this study was to increase the production of validating comments produced by these children within social contexts.

Method

Participants. There were four participants in this study; all four children attended the same elementary school and fell between the ages of 6;4 and 9;4. Three females and one male were included. Each of the children attended a mainstream classroom, and received speech and language services by being pulled out from class for a few minutes at a time. On a standardized language test, each of the children fell at least 1 standard deviation below the mean, and each of the children's teachers completed the TBRS prior to treatment. Typically developing peers were randomly selected to participate in the intervention sessions, and corresponded in gender and grade with the participants with LI.

Procedures. Three sessions, each 20 minutes in length, were analyzed for baseline and follow-up assessment. The length of the intervention period was 10 weeks, in which targeted behaviors were introduced, rehearsed, and discussed. These behaviors included teaching the children to produce validating comments. Each subject was also allowed to play with two of the typically developing peers in a cooperative play setting, during which time they were told to implement target behaviors taught in instructional sessions.

Analysis and Results

The validating comments produced by the target children and peers were analyzed from the video recorded sessions. In each intervention session, each of the subjects produced validating comments: one participant demonstrated a significant increase in validating comments, and two showed a moderate increase in validating comments. One child showed minimal change. Social outcome measures demonstrated gains in prosocial behavior in two children as perceived by teachers. Three of the children showed little change in peer acceptance measures.

Conclusions

Although the measures of peer perceptions did not reveal gains as a result of the social communication intervention, the increase of validating comments was encouraging to the author's connection of comments produced to the improved teacher perceptions and prosocial behavior reported. Although the social difficulties of the participants were not completely eliminated by this intervention, this study demonstrated that these particular children could successfully make improvements in a specific social behavior.

Relevance to the Current Work

This study provides a rationale for the implementation of the social communication intervention used in the current work. The current work implemented a social communication

intervention to increase the social communication behavior of emotion understanding through targeting the production of emotion-based words.

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

Purpose of the Study

The purpose of this study was to investigate the ability of school-age children diagnosed with LI to understand emotions conveyed by vocal prosody in a narrative.

Method

Participants. There were 38 participants in this study; each participant was between the ages of 7;9 and 10;10. Nineteen of these children were diagnosed with LI, and 19 of the children were typically developing. Children were gender and aged-matched in the two groups. Each child with LI was currently enrolled in speech and language services.

Procedures. Each participant was presented with a short narrative that had been previously recorded; each narrative expressed one of four emotions: happiness, anger, fear, and sadness. Each participant was presented with 16 of these recordings, with four that went with each emotion. The participants were instructed to label the emotion expressed in the narratives.

Analysis and Results

The study revealed that the children with LI demonstrated significantly more difficulty identifying the targeted emotions when compared to the performance of the typical peers. This study supports previous research suggesting that children with LI have decreased ability in assigning emotion to associated prosody.

Conclusion

The findings indicated that school-age children with LI have difficulty understanding emotion conveyed by prosody. This study underlines the growing need for implementation of interventions designed to target specific social and emotional behaviors within this population.

Relevance to the Current Work

The conclusions of this study ties into the emotion understanding skills that are described and targeted in the current work. This study provides a rationale of targeting these skills in the current study.

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

Purpose of the Study

The purpose of this article was to review changes that have been realized in clinical practice and change to be expected in the future as a result of pragmatics.

Summary

Clinical literature has revealed that pragmatic language models have impacted thinking about language impairments and disorders among speech-language pathologists. The goal of pragmatic models is to target communicative competence, which is knowledge of the language code, ability to make judgments of a speaker's intent, and knowledge of the rules of conversation. This article refers to language as a social behavior.

This article addresses the question of why this particular model type had such a significant impact on clinical literature. Acceptance of pragmatic models was influenced by the attention the model received in the language development literature, frustration with limitations of characterization of language behaviors, and intuitive recognition that language disorders are a social disability.

Pragmatically based models affect all aspects of language practice. Qualification for services addressing communicative disabilities have expanded so that people who may have once not qualified, now qualify for intervention. Activities in assessment have changed (for example, language samples should be taken in a variety of contexts). In the analysis procedures, changes occurred in the measurement of verbal and nonverbal behaviors. Sociometric scales, social interview scales, and other informal measures were introduced. Aspects of intervention, such as goal setting, feedback, and evaluation were changed to be more naturalistic. New clinical tasks and activities were also introduced.

Conclusions

The limits of pragmatic models are still being tested and evaluated. Many questions remain in the implementation of pragmatic models to language assessment and intervention.

Relevance to the Current Work

This article discusses the changes that pragmatic models have had clinically for children with language impairment. The current study investigates a social communication intervention on a specific targeted skill for children with LI, which focuses on practicing the skill in a larger communicative context than targeting the skill in isolation.

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

Purpose of the Study

The purpose of this study was to provide a systematic examination of the efficacy of treatments that address pragmatic skills for school age children.

Method

An ad hoc committee on language use in social interactions was formed by the American Speech-Language-Hearing Association (ASHA). The committee was instructed to develop a systematic review, based on researched evidence, of treatment for language disorders in social interactions in children between the ages of 6 and 11 years.

Analysis and Results

The systematic review conducted revealed that 8 studies were conducted between the years 1975 and 2008. These studies provided foundational support for the possible efficacy of a variety of different treatment approaches that address social communication behaviors. Each of the studies investigated had relatively small sample sizes (up to 20 participants), and outcome measures varied across studies. A variety of study designs were used, including case studies, single subject, group designs, etc. The individual studies reported gains by way of standard scores or by measures designed by the investigators (pragmatic targets). Improvement in topic management skills, repairs of ambiguous or inadequate comments, and narrative production skills was reported. In regard to changes in semantic and structural language, there were gains in word-finding and sentence formulation. However, no such gains were reported for sentence length and complexity. Specific standards to address qualitative data and single-subject designs are recommended for future work.

Conclusions

The results of the review revealed that more research is required to investigate the possible efficacy of these types of interventions. The committee was unable to recommendation significant changes in standard clinical practice, based on this review.

Relevance to the Current Work

The conclusions of this study demonstrate that more research is required to understand what intervention and procedures for intervention might provide the most effective treatment for pragmatic and social skills in children with LI. The current study investigates one social communication intervention approach and a way of monitoring emotion understanding within a social context.

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

Purpose of the Study

The goal of this study was to provide a description of behavior during conflicts between typically developing children (language development) and children who were diagnosed with LI. Specifically, the study was focused on describing reconciliation, which is a conflict resolution strategy. Reconciliation is defined as the friendly contact between conversational partners after a conflict has ended. The authors hypothesized that children with LI have weaker language skills, and have increased difficulty reconciling following conflict.

Method

Participants. There were 31 participants, all males between the ages of 4 and 7 years. Eleven of the participants were diagnosed with LI, and had been attending a specialized language preschool. The 20 typically developing language participants attended a mainstream preschool.

Procedures. Unstructured play of the participants was filmed on video. Conflicts were identified and recorded. Behaviors of reconciliation were classified into six different categories: invitation to play, object offer, body contact, self-ridicule, verbal apology, cognition. The clinicians analyzed the behavioral sequences by the children during conflict and compared them between and within the typically developing and LI groups.

Analysis and Results

The participants with LI were found to reconcile a fewer number of conflicts than the typically developing participants. Factors that contributed to these results were aberrance (inappropriate intensity of play), and escalated protests that were no longer directed in reciprocation during exchanges. In the LI participants' attempts to reconcile, behaviors tended to be exclusively verbal (without nonverbal compensation) in a smaller proportion than the typically developing group. In both groups, reconciliatory behaviors were accepted at similar rates by the conflict opponents.

Conclusions

The results of this study suggest that intervention programs designed for children with a diagnosis of LI should take into account how language and communication skills are applied in naturalistic interactions with their peers. A naturalistic context provides many opportunities for developing social skills and behavior. This study found that boys with LI had lower reconciliation rates than their typically developing peers.

Relevance to the Current Work

This study adds to the research supporting the understanding that children who have a diagnosis of LI have difficulty in social contexts and provides suggestions for areas in which these children can be supported to establish contact with peers. The current work examines the efficacy of a specific social communication intervention, targeting emotion understanding. This intervention provides support for children with LI in a naturalistic context, within which specific social skills (production of emotion-based words) are targeted.

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

Purpose of the Study

The purpose of the study was to attempt to replicate and provide extension of previous findings addressing the ability of early school-age children with specific language impairment (SLI) to enter ongoing interactions with peers who are unfamiliar. This study compared the success and length of attempts to enter ongoing interactions between children who are typically developing and children who have SLI. Another purpose of the study was to describe the participation in the interaction following access.

Method

Participants. There were 69 participants in the 1st and 2nd grades, forming 23 triads. Each triad had one target child and two unfamiliar partners matched for age and gender. There were 10 targeted participants with SLI and 13 typically developing children. All participants were Caucasian and spoke English as a first language. Children with SLI met the following requirements: diagnosis of SLI (1 SD below the mean), nonverbal IQ within normal limits, and enrollment in speech and language services.

Procedures. The procedure followed a paradigm designed to examine the access behaviors of children. During the first phase, play partners were invited to play with a specific toy, and were asked to stay and play while the examiner left to a different area of the room. After 10 minutes passed, the target child entered the room and was introduced to the play partners. The examiner provided minimal assistance to children throughout the activity. The peer interactions were video-recorded. Following the interactions, the children with SLI were administered the CELF-III and the TONI-II.

Analysis and Results

The analyses were designed to determine when the target child achieved success in accessing in the interaction already ongoing between the typically developing play partners. Within these successful attempts were two categories: access response and access initiation. Analyses looked at the number of partner inclusion bids, length of time required for first access, and percentage of time target children were involved in the play behaviors. Results revealed that all but one of the target typically developing children obtained success in accessing the interaction by initiation, but the manner this occurred varied across participants. One of typically developing children required three minutes, while nine of the participants accessed the interaction in less than a minute. Six children with SLI achieved access by responding to an initiation request, and two of these children required more than three minutes to access the initiation. The children who demonstrated decreased expressive language ability also demonstrated increased length of time to access conversations. Children with SLI overall produced fewer utterances than typically developing peers in interactions following access.

Conclusions

The authors suggest that the children with SLI have difficulty accessing interactions in unstructured social contexts, such as real life situations, while children who were typically developing accessed the interaction without issue and participated easily. Children with SLI demonstrated difficulty participating even when they had accessed the interaction.

Relevance to the Current Work

The results of this study demonstrate that children with SLI have difficulty accessing and participating in ongoing social interactions. This relates to the current work, which involves children with LI, because the participants in the current work are receiving intervention designed to target social communication behaviors. The goal of the current work is to improve social interaction skills.

Olswang, L. B., Coggins, T. E., & Timler, G. (2001). Outcome measures for school-age children with social communication problems. *Topics in Language Disorders*, *22*(1), 50-73.

Purpose of the Work

The article addresses outcome measures exhibited by school-age children with social communication problems, and provides general guidelines for selecting outcome measures. These outcome measures are discussed relative to a model for viewing abilities that are necessary for social communication, and a framework for sampling these abilities across four different contexts. The authors summarize four different types of assessment tasks and outcome measures with each task.

Summary

The authors provide a real time continuum that illustrates tasks allowing the clinician to investigate a child's understanding of people and events from alternate perspectives. Within each of the tasks, processing demands placed on the children vary. For each child, the clinician must determine the information that needs to be obtained for each child and the best way to obtain that information across the tasks, and this includes how often data collection should occur. This article suggests that the best information regarding a child's needs is most likely to be collected across a variety of tasks that occur periodically during the intervention period. Frequency of administration, ease in scoring and delivery, and length of time required are all factors included in the administration of different tasks during intervention. Both quantitative and qualitative measures are important to comprehensively examine a child's performance.

Conclusions

When it comes to identifying children with LI, speech-language pathologists have become increasingly skilled. However, as children with LI are exposed to situations at school that demand more complex levels of inferencing, social reasoning, and information processing skills, this increases the sophistication required in assessment. The purpose of this article was to

provide guidelines for measuring change in a child's language skills to evaluate social communication treatment. Outcome measures need to be sensitive to change and ecologically valid.

Relevance to the Current Work

This article discusses using narratives as a measure of the use of specific social behaviors on a real-time continuum. The current work will also use this as a behavioral measure throughout intervention, and data collection of frequency of emotion-based words will occur throughout intervention to monitor and measure the use of this skill.

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.

Purpose of the Study

The purpose of this study was to examine the ability of children diagnosed with LI to infer emotions elicited by specific social situations. According to research, children with LI's social deficits may not always be directly linked to language deficits. One aspect of social communication that children with LI have difficulty with is emotion understanding.

Methods

Participants. There were 43 participants with a diagnosis of LI, and 43 participants who were typically developing. Children in the group with LI and in the typically developing group were age and gender matched. Participants with LI fell between the ages of 5 and 8 or 9 and 12 years, were enrolled in speech and language services, had typical non-verbal IQ and unremarkable hearing status, and did not have a diagnosis of emotional or behavioral disorders.

Procedures. Each participant was presented with scenarios in which the main character, named Chris, was exposed to a situation meant to elicit a specific emotion. Examined emotions included anger, fear, happiness, or sadness. Following the presentation of each scenario, the children were instructed to indicate the emotion experienced by the main character and talk about the emotion. They were asked why the character experienced a particular emotion, and then for a description of that emotion.

Analysis and Results

The participants' accuracy of emotion identification was measured on a five-point scale. Comparisons using these accuracy measures was used to determine accuracy across the group, age, gender, and emotion variables. Children's responses to open-ended questions regarding reasoning and descriptions of emotions were evaluated. Happiness was the emotion that was most accurately identified by both groups, followed by sadness, fear, and anger. Children who were older were more accurate than younger children, and typically developing children were more accurate than children with LI. In addition, the children with a diagnosis of LI demonstrated less clarity and sophistication in descriptions of emotion.

Conclusions

Children with LI have more difficulty both inferring what emotion a character is a short scenario would experience, as well as describing the emotion, than typically developing peers.

Relevance to the Current Work

This study provides foundational evidence that children with LI have difficulty with emotion understanding, specifically identifying and describing emotions. These difficulties make it difficult for these children to interact successfully in social contexts. The authors of this study suggest that using a social communication approach to target emotion understanding is essential. The current work examines the effectiveness of a social communication approach on emotion understanding, as measured by the production of emotion-based words.

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

Purpose of the Study

The purpose of the study was to evaluate turn-taking skills of preschool-aged children with and without disabilities using a social communication intervention in which peer-directed initiations and responses were targeted. This study aimed to evaluate the effects of the intervention on turn-taking skills of the participants and maintenance of skills in follow-up observations.

Method

Participants. Eight children between ages 3-5 years were included in the study. The participants were receiving special education services at the time of the study under the categories of either specific language impairment or developmental delay. The children were assigned to dyads for intervention.
Procedures. Toys and materials used in the intervention sessions were based on five dramatic play themes with accompanying storybooks designed to provide models for role playing, theme vocabulary, and social communication strategies. A multiple baseline design across participants was used. In baseline sessions, participants were told to play with toys in a room without prompting. Intervention sessions followed the structure of (a) instruction, (b) practice, and (c) review. Follow-up sessions were similar in structure and procedure to baseline sessions.

Analyses and Results

This intervention used percent non-overlapping data (PND) to determine effectiveness of treatment for each of the children. Intervention was mildly effective (PND = 50-70%) for two participants, moderately effective (PND = 70-90%) for three participants, and highly effective

for three participants (PND = above 90%) for increasing turn-taking skills. Post-intervention, these effects were maintained under the same conditions as the baseline, but were not carried over to the classroom setting. Overall, each of the eight children demonstrated gains in initiations with immediate peer response across intervention.

Conclusions

This study demonstrated that targeting turn-taking skills is likely to have a positive impact on the quality of social interactions between peers, particularly using a social communication approach. Modeling and prompting strategies such as the ones implemented in this study could be applied by clinicians and teachers within the classroom. More data is required to determine the participants' abilities to maintain social communication skills independently.

Relevance to the Current Work

This study implemented a social communication intervention that is similar in structure to the intervention implemented in the current work. Common elements between this study and the current work are the use of narratives, role-play, and teaching/practicing a particular behavior within a social context. These elements were used in the current study with children with LI to increase the production of emotion-based words.

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

An example of implementation of a social communication intervention for preschool-

Purpose of the Study

The purpose of the study was to evaluate the effect of a social communication intervention on turn-taking skills, initiations and responses in conversation, and conversational repairs and revisions through a systematic technique of teaching communication and play skills to preschool-aged children with disabilities.

Method

Participants. Ten preschool-aged children were included in the study. The participants were considered to be at-risk for problem behavior, poor social skills, or language delay. The children were assigned to dyads for intervention.

Procedures. Toys and materials used in the intervention sessions were based on five dramatic play themes with accompanying storybooks designed to provide models for role playing, theme vocabulary, and social communication strategies. A multiple baseline across participants was used. In baseline sessions, participants were told play with toys in a room without prompting. Intervention sessions followed the structure of (a) instruction, (b) practice, and (c) review. Follow-up sessions were similar in structure and procedure to baseline sessions.

Analyses and Results

This intervention used percent non-overlapping data (PND) to determine effectiveness of treatment for each of the children. In regard to increasing the rate of initiations with a peer

response, this intervention was determined to be highly effective (PND = 90% or greater) for five children, moderately effective (PND = 70-90%) for three children, and mildly effective (PND = 50-70%) for two children. This intervention was also highly effective for one child, moderately effective for three children, mildly effective for two children, and ineffective (PND = less than 50%) for four children in improving turn-taking skills. Although some skills generalized to classroom settings, they did not generalize to playground settings. Overall, gains varied between participants.

Conclusions

This study demonstrated that the quality of social interactions is likely to be benefitted by teaching specific social behaviors, such as turn-taking. Additionally, these findings support the use of social context for teaching and practicing these skills. Teaching specific skills within a social context is much like teaching styles of preschool teachers, but with a more systematic organization. Further data regarding generalization to different contexts is required to determine the participants' abilities to maintain social communication skills independently.

Relevance to the Current Work

This study implemented a social communication intervention that is similar structured to the current work. Common elements between this study and the current work are the use of narratives, role-play, and teaching and practicing a particular behavior within a social context. These elements are used in the current study with children with LI in to increase the production of emotion-based words.

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

Purpose of the Study

The purpose of the study was to investigate social knowledge in school-age children between the ages of 8 and 12 years of age, with and without language impairment in hypothetical peer conflict tasks.

Method

Participants. There were two groups of 12 children included in this study, each falling between the ages of 8;1 and 12;2. All participants spoke English, had normal hearing, and attended mainstream classroom settings. The children in the group with LI were currently receiving speech and language services. The children in the other group were typically developing.

Procedures. The participants were presented with a hypothetical peer conflict task under two conditions: open ended and forced choice. Twelve peer conflicts were presented via slideshow; each conflict consisted of a potential conflict initiated by someone referred to as the child's friend. Open-ended conflicts were presented before forced-choice tasks. The Social Skills

Rating System (SSRS) was completed by each participant's mother to provide information about frequency of social skills and problem behaviors at home. The teachers completed a teacher edition of this assessment (TOPS) to rate behaviors and skills at school. Participants were seen for one session that was 2 hours in length, and each session was audio recorded.

Analyses and Results

The data gathered during the experimental task included the number of responses within a particular category. To detect group differences, one-way ANOVAs were used to look at group differences in number of strategies used, prosocial strategies used and selected, self-interest goals, and positive consequences. The performance of the group with LI on the hypothetical tasks was evaluated using the parent and teacher reports.

Results showed that the group with LI produced and selected fewer prosocial strategies than the typically developing group. The group diagnosed with LI also predicted fewer positive consequences when each participant was asked how they believed a friend might react to a targeted conflict resolution strategy. Across both groups, the proportion of prosocial strategies and positive peer consequence was similar. As a motivation for strategies that were selected, both groups reported more self-interest than goals for developing relationships. Teacher ratings of the children in the LI group were associated with prosocial strategies.

Conclusions

This study revealed that children with LI selected fewer prosocial strategies when attempting to resolve conflicts when compared to their typically developing peers. Educators and other professionals supporting these individuals may overlook social communication difficulties of children with LI. Screening of social communication skills should be a part of a comprehensive evaluation, so that if they have social communication deficits they can be taught what to do in such social situations and practice these skills in functional and meaningful settings.

Relevance to the Current Work

The implications of this study are foundational for the social communication approach that was implemented in the current study. Children with LI require support that cannot be provided exclusively by targeting language skills in isolation. A more favorable approach is to provide functional and social contexts within which specific skills can be targeted. The current study examines children with LI and the efficacy of social communication intervention on specific social communication skill sets, such as emotion understanding.

Timler, G. R., Olswang, L. B., & Coggins, T. E. (2005). "Do I know what I need to do?" A social communication intervention for children with complex clinical profiles. *Language, Speech & Hearing Services in Schools*, *36*(1), 73-85. doi:10.1044/0161-1461(2004/007)

Purpose of the Study

The purpose of the study was to examine the efficacy and practicality of social communication interventions for children with complex cognitive and behavioral profiles (secondary to fetal alcohol spectrum disorder) at the elementary school age. In the field of speech-language pathology, difficulties in social communication are often addressed in children with a variety of complex diagnoses.

Method

Participants. This study was a case study of a young girl (age 9;8), recruited from the University of Washington's Fetal Alcohol Syndrome Diagnostic Prevention Network Clinic. The subject had a history of growth deficiency, facial anomalies, brain dysfunction, and teratogenic prenatal alcohol exposure. By the age of 5, she was diagnosed with Fetal Alcohol Syndrome Disorder (FASD).

Procedures. The intervention procedure targeted mental state verb production and social cognitive skills. Intervention components were role play of social scripts, checklists to guide the child through conflict in a social situation, and clinician modelling of socially appropriate responses. Intervention data investigated the child's responses to checklist questions addressing mental state verbs and appropriate course of action, and probe sessions were conducted to examine mental state verb productions in theory of mind tasks.

Analysis and Results

Analysis of the data revealed that no mental state verbs were produced during the baseline probes, but they were produced throughout the course of treatment. Additionally, changes were seen in the length and complexity of the child's responses to checklist questions. The child's use of socially appropriate strategies to resolve conflicts in social situations increased, but without the checklist, she was limited in her ability to move beyond her initially selected strategy to resolve social situations. The subject was consistently motivated by avoiding chastisement rather than addressing the feelings of the social partner. Overall, the subject made modest gains following this intensive, but short-termed intervention.

Conclusions

The results of this study suggest that the type of intervention used could be effective for children with linguistic and social cognitive deficits. Responding to checklist questions, such as the subject of this study, may facilitate reflection and increased ability to manage social situations, which may predict a positive behavior change. This study provided important foundational evidence for social communication intervention. Children with complex clinical profiles will probably require comprehensive interventions. Future research should target generalization of the types of skills developed through social communication intervention.

Relevance to the Current Work

      Although the subject of this case study was diagnosed with FASD, the benefits suggested are helpful to the development of an effective social communication intervention across diagnostic categories. The current study implements a social communication approach targeting emotion understanding, the efficacy of which will help to develop a comprehensive social communication approach to school-age children with social and language deficits.

APPENDIX B:

Emotion Word Coding Manual

Participant Initials:
Session Number and Date:
Length of Video:
Examiner:

Emotion-Based Word	Category of Emotional State	Category in Error	Production and Target Match	Time of Production	Type of Production

Guidelines for Coding Productions

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

Time of Production – Write the exact time in the clip that the emotion-based word is produced (e.g., 12:46).

Type of Production – Write the nature of elicitation (support required) for the emotion-based word produced as follows:

> **Spontaneous (S):** The participant produced the emotion-based word without modeling or prompting from the clinician.
>
> **Cued (C):** The participant produced the emotion-based word following a phonological cue (e.g., the clinician produces "/s/" to elicit the word "sad"). Semantic and gestural cues are not coded as cued productions.
>
> **Repetition/Imitation (R):** The participant produced an emotion-based word within five seconds of a clinician model of the word, with no other verbalizations between the clinician's production and the child's production.
>
> **Question (Q):** The participant produced an emotion-based word in direct response to a question proposed by the clinician (e.g. "How does he feel?").

Category of Emotional State – Categorize each emotion-based words by labeling it with the category most closely synonymous to its meaning (e.g., *mad* will be grouped under *anger; excited* will be placed under *happiness*, etc.). Emotional categories will coincide with those defined by Dunn et al. (1987):

> **Happiness (H)**
>
> **Surprise (Su)**
>
> **Anger (A)**
>
> **Fear (F)**
>
> **Disgust (D)**
>
> **Sadness (Sa)**

Category in Error— Participant produced an emotion-based word that falls into an emotion category other than the intended emotion category, write the code for the intended emotion category.

Production and Target Match—If the emotion-based word fell within the intended emotion category, write "+" to indicate the production and target match. If the participant produced an emotion-based in a category other than the intended category, write "- "to indicate that the production and the targeted category do not match.

Special Coding Considerations

Code the following:

- Specific names for emotions (e.g., sadness, happiness, anger, etc.)
- Adjective forms of emotion words (e.g., excited, scared, annoyed, etc.)

- The verbs *like, love* and *hate*
- Words describing facial expressions associated with specific emotions (e.g., "She feels *frowny*" Or "That's a *scary* face")

Do not code the following:

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

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.

In addition, for productions with vague emotion reference (e.g. bored), judge the emotional category based on the context of the production.

APPENDIX C:

Mean Production of Emotion-Based Words for Baseline, Intervention, and Follow-Up Sessions

Participants	Emotion Categories and Means					
	Anger		Fear		Surprise	
Intervention Sessions	1-10	11-20	1-10	11-20	1-10	1-20
JS	1.8	3.3	3.5	6.1	0.5	1.3
ADK	5.8	4.7	7.7	10.7	5.2	3.4
ALK	10.3	6.1	5.6	19.3	7.3	6.3
MK	2.2	2.6	6.0	5.6	1.3	2.1
SS	4.8	8.7	8.0	10.5	5.1	2.7
Baseline (B) and Follow-Up (F) Sessions	B	F	B	F	B	F
JS	0.0	0.0	0.0	0.0	0.0	0.0
ADK	5.8	2.7	1.0	0.7	0.5	0.0
ALK	1.0	0.7	0.0	0.0	0.0	0.0
MK	0.0	0.7	0.0	0.0	0.0	0.0
SS	1.5	2.0	0.2	0.3	0.0	0.0