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

Master of Science

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ABSTRACT

Social Networks of Children with Language Impairment

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Children with language impairment (LI) often exhibit social difficulties along with language issues that can affect their friendships with peers. This study sought to identify the self-reported social networks of children with LI and compare them to the self-reported social networks of children with typical language development. Sixteen children with LI (9 girls and 7 boys) between the ages of 5-11 years, and sixteen children with typical language development matched for age and gender were studied. Children were asked to name interactants in four social circles (Blackstone & Hunt Berg, 2003): family, friends, acquaintances, and paid interactants. A parent also completed a shortened version of this questionnaire. Additionally, children completed an informal picture task (Fujiki, Brinton, & Todd, 1996) to determine the number of peers they interacted with in various activities (e.g., eating lunch at school). The number of family and close friends named by children in each group did not significantly differ. Children with typical language skills did name more interactional partners who were considered to be casual peer acquaintances and paid interactants than did the children with LI. Parent and child responses differed on several of the comparisons. The groups also differed on the number of peers named on the picture task activity, replicating previous results.

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DESCRIPTION OF STRUCTURE AND CONTENT

This thesis is presented in a hybrid format where current journal publication formatting is blended with traditional thesis requirements. The introductory pages are therefore a reflection of the most up-to-date university requirements while the thesis report reflects current length and style standards for research published in peer reviewed journals for communication disorders. Appendix A is composed of an annotated bibliography. Appendix B includes the school testing data used to qualify the children with LI for intervention services. Appendix C includes the child and parent responses regarding the child's favorite subjects of conversation. Appendix D includes the child and parent responses to the child' interview questions. Appendix E includes the child informal picture task to determine interactive activities with peers. Appendix F includes the parent interview questions. Appendices G and H are copies of the informed consent forms for children with language impairment and children with typical language, respectively.

Introduction

The link between language difficulties and social issues in children has been well

documented (Aro, Eklund, Nurmi, & Poikkeus, 2012; Brinton & Fujiki, in press; Brinton, Fujiki,

Montague, & Hanton, 2000; Conti-Ramsden & Botting, 2004; Farmer, 2000; Fujiki, Brinton,

Isaacson, & Summers, 2001; Fujiki, Brinton, Morgan, & Hart, 1999; Fujiki, Brinton, & Todd,

1996; Gertner, Rice, & Hadley, 1994; Laws, Bates, Feuerstein, Mason-Apps, & White, 2012;

Monopoli & Kingston, 2012; Osman, Shohdi, & Aziz, 2011; Rice, Sell, & Hadley, 1991). These

social difficulties can involve a range of internalizing and externalizing behaviors (Botting &

Conti-Ramsden, 2000; Conti-Ramsden & Botting, 2004). Internalizing problems such as social

withdrawal are the most common, however (e.g., Fujiki et al., 1999).

The behavior difficulties experienced by children with language impairment (LI)[1] impact

two important aspects of the social lives of school-age children: peer acceptance and friendship

(Laws et al., 2012). Peer acceptance for children with LI is a concern early on, in that preschool-

age children with LI may demonstrate a preference to initiate communication mainly with adults

as opposed to peers (Rice et al., 1991). These children tend to ignore attempts by peers to

initiate communication and are also frequently ignored by peers, leading to further isolation from

peer activities (Rice et al., 1991). Gertner et al. (1994) asked preschoolers to rate their peers in a

socio-dramatic play activity and found that children with language difficulties were among the

least preferred playmates. Fujiki, Brinton, Hart, and Fitzgerald (1999) asked elementary school

students in classrooms containing children with LI to rate each of their classmates as to how

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[1] Language Impairment (LI) will be used to refer to children who have language problems in the
face of relatively typical development in other areas. Specific Language Impairment (SLI) will
be used when the authors of particular studies used that term.

much they liked to play with them. Three of the eight children with LI studied were notably less well-accepted then peers.

Friendship is also problematic for children with LI. Fujiki, Brinton, Hart, et al. (1999) found that five of eight children with LI did not have a reciprocal friend in their classroom (a child that they listed as one of their three best friends who also listed them as one of three best friends). Studying older individuals with LI, Durkin and Conti-Ramsden (2007) found that significantly greater numbers of adolescents with LI reported poorer quality friendships than typical peers.

Although it is well documented that children with LI have reduced social contacts compared to peers with typical language skills, there is relatively little information on the specifics of these social contacts. When children with LI do participate in social interactions, with whom do they choose to interact? Diamond, Le Furgy, and Blass (1992) suggest that typical children tend to gravitate towards children of similar abilities and gender as early as four years old. Rice et al. (1991) found that children with LI tend to seek out adults rather than peers as partners. Additionally, Gertner et al. (1994) found that children with limited language abilities were more often viewed as less desirable playmates by peers. In order to more fully understand the social networks of children with LI, additional research into the specifics of their social interactions is required. To address this issue, the goals of this study were to determine (a) who children with LI spend their time with and (b) what are the nature and settings of those interactions?   As a matter of cross checking the validity of the child self-reports, parents were also interviewed regarding the social interactions of their children.

Social Networks

The term social network can be defined in a variety of ways. For current purposes this term is defined as follows:

> . . . social networks refer to the groups an individual associates with and how the
>
> individual is connected to the group. Social networks describe patterns of relationships
>
> as determined by connections based on reasons for association. Social network analysis
>
> can take many forms and explore various aspects of an individual's social contacts with
>
> others (Whitworth, 2012, p.11).

For the purposes of this study, a modified version of Blackstone and Hunt Berg's (2003) method of social network analysis was used. This method was originally developed to determine which augmentative communication device would best fit an individual's communication needs. In this context, Blackstone and Hunt Berg requested that individuals with complex communication needs identify specific people within various circles of communication (i.e., inner most circle: life partners, good friends; second circle: acquaintances; third circle: partners who are paid interactants and unfamiliar partners). The different modes of communication used with each individual in each circle were also identified (i.e., gestures, speech, sign language, etc.) in keeping with the need to more fully understand the complete communication needs of the individual. This method of social network analysis was one of the primary inspirations for the research methods used in both the pilot study and in the current work. The pilot study (Whitworth, 2012) examined the social circles and interactions of eight children with LI, ages 5 to 9 years, and eight age- and gender-matched classmates with typical language. As predicted by previous research, Whitworth discovered that the participants with LI had fewer peer contacts than typical language children. When presented with an interview similar to that given to the

children, six out of eight parents of children with LI listed specific topics that they perceived that

their child wanted to talk about but could not, as opposed to two of the eight parents of typical

language children. Whitworth also noted that when the children with LI interacted with non-

family adults, these adults tended to be paid caregivers (i.e., speech and language therapists,

teachers, day care aids), or obligatory volunteers (i.e., school classroom volunteers, crossing

guards, church volunteers), whereas children with typical language indicated more non-family

adult contacts who were parents of friends, or family friends. Determining whether this trend

would also be seen with a larger sample size of participants was one of the main motivations for

expanding the pilot into the current study.

Other inspiration for the current research came from Fujiki et al. (1996) who documented

the quantity of social contacts of children with SLI in a school setting. Fujiki and his colleagues

examined nineteen children with SLI and nineteen chronologically age-matched peers with

typically developing language skills, between the ages of eight and twelve years of age. The

researchers administered the Social Skills Rating System-Teacher Form (SSRS-T; Gresham &

Elliot, 1990), to obtain a general measure of social skills. The participants were then given an

informal picture task to determine interactive activities with peers, to ascertain the quantity of

friends with which the children interacted in various social activities, such as playing games,

playing at others' houses, etc. The general quality of friendships was determined using the

William and Asher Loneliness Questionnaire (Williams & Asher, 1992). It was found that

"children with SLI differed from their peers on all three measures. [These results] suggested that

the children with SLI had poorer social skills and fewer peer relationships, and were less

satisfied with the peer relationships in which they participated" (Fujiki, Brinton, Hart, et al.,

1996, p. 195). Specifically, when given the informal picture task to determine interactive

activities with peers, children with SLI reported a mean of 9.68 social contacts, as opposed to the typical children's mean of 12.95 contacts, a statistically significant difference.

Statement of the Problem

The current study was an expansion of a pilot study conducted by Whitworth (2012) and used a combination of Blackstone and Berg's *Blackstone Social Network Inventory* (2003) and the Fujiki et al. (1996) informal picture task to determine interactive activities with peers to assess the social networks of children with LI as well as those of typically developing children. This study attempted to answer the following key questions:

- According to child self-report, are there significant differences in the quantity of the social interactions of children with LI compared to children with typical language?

- According to parent report, are there significant differences in the quantity of the social interactions of children with LI compared to children with typical language?

- How do the social circles and networks of children with LI compare with those of children with typical language development?

Method

Participants

The sample consisted of 16 children with LI and 16 children with typically developing language, for a total of 32 participants. The parent sample consisted of one parent from each child, typically the mother, for a total of 32 parent participants.

Children with LI. Sixteen children with LI (nine girls and seven boys) were selected from their client caseloads by speech language pathologists in one local school district. All of the procedures were approved by the IRB of Brigham Young University prior to study commencement. To be included in the study, children were required to meet the following criteria:

- Chronological age between 5 and 11 years.

- Primary placement in mainstream classrooms.

- Typical IQ as indicated by placement.

- Current enrollment in speech and language services at school.

- Educational diagnosis of LI.

- Typical hearing as determined by passing a school hearing screening.

The available current testing for these children is presented in Appendix B (formal testing for one child with LI was not available, see Appendix B). In some cases, test scores indicated functioning in the typical range. In these cases, placement in language intervention was used as the basis for inclusion.

Children with typically developing language. Sixteen children (nine girls and seven boys) with typically developing language were selected by the SLP or by the researcher. Each of these children met the following criteria:

- Age and gender individually matched to a child in the group with LI, within 7 months.

- No enrollment in any special services (e.g., communication, academic) at school.

- Good academic and behavioral standing at school, as determined by teachers.

- Typical hearing as determined by passing school hearing screenings.

All typical children had unremarkable language, academic, and behavioral history according to verbal teacher reports. Participant socioeconomic status (SES) was estimated by income, based on block group data from the 2011 Census Data. The mean of families with children under 18 who were below the poverty level was 8.92% (SD = 6.19), for all five schools surveyed. Four of the schools showed relatively similar poverty levels (between 2.5 – 8.7%), although one school, from which six children with LI and 7 typical children were sampled, had a higher poverty level of 12.9%.

Examiners

Two different examiners conducted the interviews with the children at their schools and with the parents over the phone. The same examiner who interviewed a child at school would later contact the same child's parent. The examiners met beforehand to discuss interviewing protocol. Only one researcher scored and completed the analyses for all of the data.

Instrumentation

Social network assessments. The assessments of social networks included interviews of the child and one parent. The questions used in these interviews are described as follows.

Child interview. A questionnaire designed to determine the number of peer contacts in various contexts was administered to each child participant. The adapted script used to elicit responses from the participants was developed by the research team (see Appendix D). The

script began with an introduction of the task and a question to help the child start thinking about

people he/she spent time with and talked with. The general format used in the script for each

item was to first ask the child to think about a specific subset of people talked with, who those

specific people were (names, gender), and then how often the child talked with them (once a

week, daily, etc.).

    Picture task. An informal picture task to determine interactive activities with peers was

used to estimate the number of peer contacts per child (see Appendix E). The task was adapted

from a similar procedure administered by Fujiki et al. (1996). Ten photos showing children

participating in different activities (playing at someone's house, coloring/drawing, playing at

recess, riding bikes, playing games, watching TV, playing with toys, having a sleepover, talking

on the phone, and eating lunch at school) were presented to each child. The child was asked

whom he/she did the activity with, and the researcher wrote down the child's responses.

    Parent interview. The parent phone interview questions were based on items in the

Blackstone Social Network Inventory (Blackstone & Hunt Berg, 2003; see Appendix F). The

assessment was designed to obtain more detailed information about each child's social networks

according to one of the child's parents. Some questions were pulled directly from Blackstone

and Hunt Berg's Inventory Booklet while others were modified to elicit responses that would

paint a picture of the size and nature of the child's circles of communication partners.

Approximately half of questions in the interview were designed to probe information about

interactional partners within circles of family, friends, acquaintances, and paid interactants. The

second half of the interview included questions regarding whom the child talked to the most,

what topics the child most often talked about, and whether or not the parent perceived the child

to have any difficulty communicating (i.e., *Is there anything that you think your child wants to talk about, but can't because they don't have the ability to do so?*).

Data Collection

   Child interview. Each of the children were interviewed at their school during school hours. Each child was pulled out of class individually for the assessment, which lasted from ten to fifteen minutes. Children were interviewed in the hallway outside of the classroom. In each case, the child sat with the researcher and was shown pictures and interviewed according to a script (see Appendices D & E). The assessment was designed to obtain data about the child's social circles or networks. The child's answers were written down by the researcher. Each child received a sticker as a reward for participating in the assessment.

   Parent interview. Parents were pre-notified that they would be contacted by phone as part of the assessment. Parent interviews were administered over the phone with one parent of each child and lasted from 10-20 minutes. Phone interviews were conducted by the same researcher who administered the informal picture task to determine interactive activities with peers and questionnaire to the children. Answers were written down by the researcher during the phone interviews. If the interviewee was unable to remember specific names of individuals they were asked to indicate the number of people included in a group or activity and these were scored as if they were named individuals (see Appendix F).

Scoring

   Parent and child interviews. The number of contacts in each social circle was separately totaled for each child participant from the self-report and from the parent interview. Groups were compared inferentially on each of these measures.

Informal picture task to determine interactive activities with peers. Raw scores for the informal picture task to determine interactive activities with peers were calculated in the following way: 2 points were awarded for an item in which the subject indicated that they participated in with 2 or more friends, 1 point for an item in which a single friend was indicated, and 0 points for an item in which no friends or only family members were indicated. Credit was still given if the same peer was indicated for multiple activities. Scores were totaled for each group and inferential comparisons were made.

Reliability

One graduate clinician (the current author) completed all of the coding, and interjudge reliability was established with the help of another graduate clinician previously unrelated to the research (the independent coder). The independent coder was briefed on scoring by the expert coder with a parent interview, child interview, and child informal picture task to determine interactive activities with peers data sheets as examples, which were separate from the interview data sheets used in the reliability sample. Reliability was established by the independent coder scoring 10% of the database. The percentage of agreement between the two coders was 97%.

Results

Differences between the language ability groups (children with LI versus children with typical language) were first examined by comparing child responses to the picture task to determine interactive activities with peers. Parent and child responses (both LI and typical) to the social circle questions were compared inferentially and then qualitatively.

Picture Task to Determine Interactive Activities with Peers

The children with LI reported a mean score of 6.62 ($SD = 5.18$) peers interacted with across the 10 activities pictured. Typical children reported a mean of 9.25 ($SD = 3.66$) peers interacted with in the activities. The maximum points possible in this measure were 20. The means were significantly different as measured by a one tailed t-test for dependent means ($t = 1.87$, $p = .04$), with the children with LI having fewer non-family contacts than the typical children.

Content of Social Circles

Child and parent responses were examined in each of four circles (family, close friends, acquaintances, paid interactants) and quantitative and qualitative analyses were performed. In the inferential analyses, language ability group (LI, typical) and interviewee (parent, child) served as independent variables. The differences between the responses within categories were analyzed for differences, such as the differences between the children with LI's responses versus that of their parents, etc.

Family. The number of interactional partners reported was analyzed using a two way ANOVA (group x interviewee). The mean number of family members (excluding the child) for each group, by interviewee, is presented in Table 1. Children with LI listed an average of 4.19 family members, compared to 3.97 for typical children. This difference was not significant F (1,

60) = .48, *p* = .4911. The difference between the parent and child responses was also non-

significant but suggested a trend in the data *F* (1, 60) = 2.85, *p* = .0966. The interaction between

variables was not significant *F* (1, 60) = .01, *p* = .9207. It was of interest that the responses of

the parents and the children produced a near significant difference on the number of individuals

in the family, which is a relatively fixed number, and would be expected to be easily relatable by

both parents and children.

Table 1

Person(s) Named as Living in the Same Household as the Child

Responses	Children with LI	Children with Typical Language	Total
	M (SD)	*M (SD)*	*M (SD)*
Child	3.94 (1.29)	3.69 (1.08)	3.81 (1.18)
Parent	4.44 (1.46)	4.25 (1.18)	4.34 (1.31)
Total	4.19 (1.38)	3.97 (1.15)	4.08 (1.26)

Friends or peers. From both the parent and the child report, the number of friends was

calculated by totaling the number of contacts named as being close friends excluding family

members. There was no significant difference between the groups for number of close friends *F*

(1, 60) = 1.3, *p* = .2587, or between the parent and child responses *F* (1, 60) = .02, *p* = .888. The

interaction between the independent variables was not significant *F* (1, 60) = .01, *p* = .9207.

Table 2

Person(s) Named as Being Good Friends with the Child

Responses	Children with LI	Children with Typical Language	Total
	M (SD)	*M (SD)*	*M (SD)*
Child	3.44 (2.66)	4.50 (1.93)	3.97 (2.35)
Parent	3.69 (3.14)	4.06 (2.17)	3.88 (2.66)
Total	3.56 (2.86)	4.28 (2.04)	3.92 (2.49)

Acquaintances. The mean number of persons named as acquaintances by parent and

child in both groups are reported in Table 3. Acquaintances were separated from good friends, to

denote peers or extended family members who were played with or talked with at least once a

week, but who were not viewed by the parent or child as a "good friend." It is important to note

that parents (especially parents of children with typical language) tended to name more

acquaintances than the children, and to expand the circle size by naming large groups, such as

"soccer team, church class" or "class at school."   In these instances, parents were asked to give

an estimated number of acquaintances for large groups, which were then counted as named

individuals. There was a significant difference between the number of acquaintances between

children with LI ($M = 2.06$) and typical children ($M = 3.94$) $F(1, 60) = 4.32$, $p = .042$, and a

notable trend between the parent and child account of acquaintances $F(1, 60) = 3.5$, $p = .0662$,

with the total mean for parents ($M = 3.84$) being higher than the mean for children ($M = 2.16$).

The interaction between the variables was not significant $F(1, 60) = .12$, $p = .7302$.

Table 3

Person(s) Named as Acquaintances of the Child

Responses	Children with LI	Children with Typical Language	Total
	M (SD)	*M (SD)*	*M (SD)*
Child	1.38 (1.15)	2.94 (2.62)	2.16 (2.14)
Parent	2.75 (2.38)	4.94 (6.18)	3.84 (4.74)
Total	2.06 (1.97)	3.94 (4.78)	3.00 (3.75)

Paid interactants. The mean numbers of paid interactants reported by the child and

parent are reported in Table 4. Paid interactants were defined as people whose primary

association with the child was in a paid or supervisory role. This category included teachers,

speech and language pathologists, day care aides, and other professionals. It also included

coaches, Sunday school teachers, and others who were obligated to interact with the child by

virtue of the formal institution they were affiliated with (e.g., school, church volunteers, cub

scouts, etc.). There was a significant difference between parent and child accounts of paid

interactants F (1, 60) = 10.35, p = .0021, with parents naming more persons than children (M =

3.13 compared to M = 2.16, respectively). There was also a notable trend between the paid

interactants of children with LI (M = 2.91) versus typical children (M = 2.38), F (1, 60) = 3.12, p

= .0824. The interaction between variables was not significant F (1, 60) = .09, p = .7652. In

general, the parents named more paid interactants than children, and children with LI had more

paid interactants than typical children.

Table 4

Person(s) Named as Paid Interactants for the Child

Responses	Children with LI	Children with Typical Language	Total
	M (SD)	*M (SD)*	*M (SD)*
Child	2.38 (0.50)	1.94 (1.39)	2.16 (1.05)
Parent	3.44 (1.41)	2.81 (1.28)	3.13 (1.36)
Total	2.91 (1.17)	2.38 (1.39)	2.64 (1.30)

Contacts within Social Circles

The purpose of some of the parent interview questions was to give a better idea of what

the child's typical communicative interactions looked like. The following is a qualitative

analysis of the answers to those questions, regarding communication partners and settings.

Talk to most frequently. According to child self-reports, children with LI and children

with typical language favored peers as the person talked to the most. Both groups named a peer

twice as often as they named a family member. Contrary to this finding, parents only named a

peer as the person that the child most talked to once (for a child with LI), and instead tended to

name the mother, followed by a sibling. Out of all four groups of reports (from the child with LI,

the child with typical language, parent of child with LI, and parent of child with typical

language), fathers were named as the most talked to person by only one child with LI and one

parent of a child with LI. An extended family member (an aunt) was named once by a child with

LI (see Figure 1).
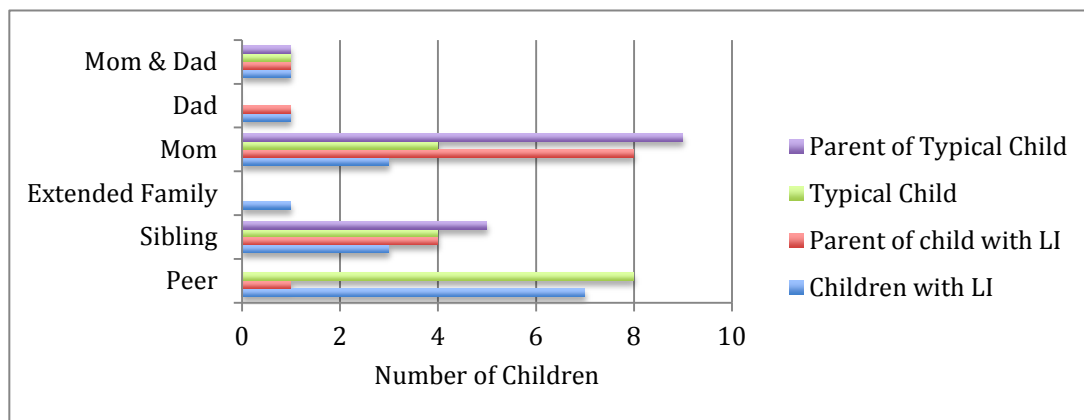
Figure 1. Person(s) the child talked to the most, as indicated by children with LI, typically

developing children, and their parents.

Favorite conversational partner. Both children with LI and typical children most often

indicated that a peer were their favorite person to talk to and spend time with. Children with LI

named peers twice as often as they named parents. This was also the case for children with

typical language, who listed peers as preferred over all other categories combined (mom, dad,

parents, siblings, extended family). Parents of both groups of children tended to spread out the

selections more evenly.   Parents of children with LI named peers as their child's favorite

conversational partner most often, followed by extended family, dad, and siblings. For typical

children, the parents named siblings, mom, dad and extended family most often, in that order

(see Figure 2).
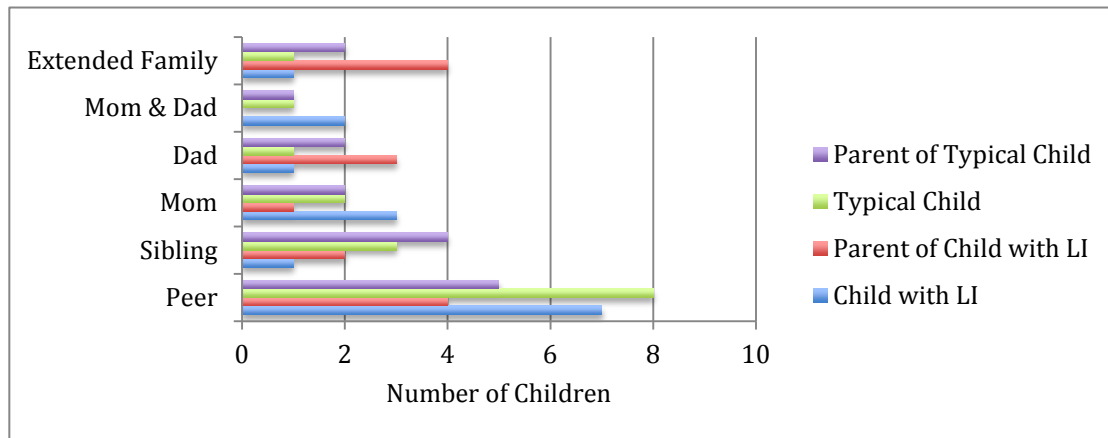
Figure 2. Child's favorite person to talk with, as indicated by children with LI, typically

developing children, and their parents.

Topics of conversation. Each child's favorite or most current topics of conversation

were listed and showed a wide variety of interests for both children with LI as well as typical

language children (see Appendix C). Children with LI were able to name from zero to four

subjects that they enjoyed talking about, and collectively named 16 topics of conversation,

ranging from general topics (friends, animals, school, books, pets, sports, interesting things,

grownups, funny things, video games, wars) to specific (card game Uno, my imaginary friend,

Disneyland, parents, extended family). There were three children with LI who answered "I don't

know" when asked what they liked to talk about the most, as compared to one child with typical

language. Conversely, the parents of children with LI answered this question about their child's

favorite subject of conversation with "I don't know" twice as often as did parents of children

with typical language, and those parents of children with LI who did respond with a number

named two to six subjects that their child liked to talk about. The typical children individually

named zero to two subjects that they were interested in, with 11/16 children responding with a

single subject of interest. Collectively, children with typical language named 13 topics most

talked about, also ranging from general (recess, funny things, books, future plans, sports, friends,

toys, animals) to the more specific (my birthday, swimming, homework, science, midgets).

Parents of children with typical language also were individually able to name zero to five

subjects of interest for their children, and collectively able to name 13 topics of conversation, as

opposed to parents of children with LI who were able to name only seven topics. One mother of

a child with LI said that her daughter's favorite topic of conversation was her current worry

about natural disasters, while other parents of children with LI named more general topics

(princesses, movies, facts, animals, nature, and sports). Parents of children with typical language

named general topics (movies, daily events, animals, toys, books and reading, siblings, friends,

music, drama, future plans, sports) as their child's favorite topic of conversation.

Topics the child would like to talk about but does not. Children with LI and their

parents named more topics that were hard for the child to talk about than did typical children and

their parents. Children with LI named a wide range of topics (people who had died, boys,

divorce, friends, teachers, step-parents, division). On four occasions, children with LI indicated

that talking to their dad was the most difficult, either because he was mean, busy, or undefined.

One girl with LI responded to this question by stating, "Some things are hard for me to explain.

Sometimes I say things that don't make sense."   Two children with LI indicated that there were

topics or people who were hard for them to talk to, but didn't explain further, even when

prompted.

The parents of children with LI named shyness and emotions as topics that were hard for

their children to talk about, as well as more general topics (other adults, peers, parents), and

negative topics (divorce, people who had died). Conversely, children with typical language had

fewer general subjects that were hard to talk about (siblings, friends, crushes), and also

mentioned the same negative topics (divorce, people who had died). At the same time, their

parents indicated a few more hard-to-discuss topics or situations (hard to talk to when frustrated,

hard to talk to when in trouble, very sensitive, new grownups, crushes, dad), as well as negative

topics (divorce, people who had died). Six typical children and seven parents of children with

typical language indicated that there was not a topic the child could not talk about or person that

the child could not talk to. Only three children with LI and five parents of children with LI gave

similar responses.

Discussion

This study examined the social networks and interactions of children with LI and those of their peers with typical language abilities. It was found that although there were not significant differences between groups in the number of the individuals named as family members or good friends, there were significant differences in the number of acquaintances and paid interactants. When asked to name the peers with whom the child interacted with in common activities, children with typical language named significantly more individuals than did the children with LI. There were also qualitative differences in the way that the children with LI interacted and communicated as compared to the children with typical language, based on their answers to various interview questions.

Reflections on Findings

This study examined the social networks of children with LI and those of their typical peers. When the interactants were divided into social circles (i.e., family, good friends, acquaintances, paid interactants) findings indicated that there were no significant differences between the child language groups regarding the number of family members or good friends with whom the children interacted. This finding regarding friends differed from the pilot study results, where children with LI were found to have fewer friends and interactants in general than children with typical language. In the present study, the children with LI interacted with fewer peers who were acquaintances than did the children with typical language. Also in the present study, parents of both children with LI as well as children with typical language named more acquaintances for their children than did the children themselves. The children with LI also had more paid interactants reported than did typical children. When the children were asked to name peers that they interacted with in a series of common tasks in the informal picture task to

determine interactive activities outside of school, it was found that children with LI named significantly fewer interactants than did the typical children.

Content of social circles. Four levels of social circles were examined in this study: family, good friends, acquaintances, and paid interactants. The first two categories, family and good friends, did not produce statistically significant differences between the children with LI and the children with typical language. It was not surprising that these groups of children would not differ in the number of family members with whom they interacted. Members of the same household have ties and obligations that extend beyond personal choice or even language ability that bring them together.

More surprising was that the groups did not differ on the number of close friends listed. The existing literature suggests that children with LI have fewer friends than their typical peers (Durkin & Conti-Ramsden, 2007; Fujiki, Brinton, Hart et al., 1999). This outcome may be related to the nature of the sample, in that children with LI were selected based solely on enrollment in intervention, and not on standardized testing (see limitations for additional discussion). It may also have been the case that children with LI were not as aware of what constituted a friend. For example, it has been reported that children with LI have named peers as friends who did not like them (e.g., Fujiki & Brinton, in press). Additionally, the results of the informal picture task to determine interactive activities with peers, to be discussed later, did produce significant differences. This outcome suggests that children with LI participate in a range of common activities with fewer peers than do typical children. Still, in spite of these speculations, it is the case that there were no significant differences between groups in the number of "good friends" named. If this is the case, this is an encouraging result, and a more positive outcome than has been found previously.

The children with LI did differ significantly from their peers in the numbers of casual

acquaintances named. Parents tended to name more acquaintances than did their children. The

difference between the children with LI and typical peers indirectly confirms other research

suggesting that children with LI do not have as many social contacts in contexts such as the

classroom (Rice et al., 1991) or on the playground (Fujiki et al., 2001). Involvement in

extracurricular activities could give typical children more exposure to and practice with various

communication partners.   It is also the case, however, that parents of some of the typical

children named large groups as acquaintances, such as sports teams, dance classes, and church

classes. Given the relatively small number of participants in each group, these outliers may have

influenced the overall outcome.

As predicted, children with LI had more paid interactants in their social networks, mainly

because their language and communication needs necessitated more paid assistance in the school

setting. These interactants included speech language pathologists, resource groups, teacher

assistants, and reading tutors. The paid interactants for children with typical language were

mainly sports and group leaders for extracurricular activities, as well as classroom teachers.

Picture task to determine interactive activities with peers. The informal picture task

to determine interactive activities with peers presented another view of the number of peer

interactions of both children with LI and children with typical language. This informal task

required each child to identify specific interactional partners in a variety of common activities

(e.g., playing at a friend's house, playing at recess at school). There was a significant difference

between the child language groups as to the number of reported peer interactions for the picture

task, with children with LI lagging behind children with typical language. This finding

replicated previous work using the same task (Fujiki et al., 1996). Children with LI were more

likely to name family members as the people with whom they participated in the named

activities, resulting in lower overall scores since family members were not counted. Children

with LI were also more likely to say that they did not participate in certain activities, such as

sleepovers, than were the typical children. This result suggested that children with LI did not

participate in social activities with as many peers as typical children. It also raised some

interesting questions when considered with the failure to find differences in the number of

individuals named as close friends. It is possible that the groups did not differ in the number of

friends identified, and at the same time did differ on the number of peers they interacted with in

common activities. It may also be the case, however, as mentioned above, that the children with

LI were not as aware of what having a friend actually involved (e.g., doing things together,

reciprocity of friendship). Based on current findings, it is impossible to know which of these

possibilities is more likely. This question should be explored in more detail in future research.

It is of note that the current finding that children with LI interacted with fewer partners

than typical children is a replication of previous work (Fujiki et al., 1996). As such, this

outcome is concerning. The fact that the children with LI have fewer interactions may be due to

several related factors. First, it is expected that language deficits limit the ability of these

children to interact successfully with their peers. Additionally, the children with LI may be

viewed as less desirable interactional partners due to their language deficits (Gertner et al.,

1994). Another possibility for the reduced number of peer interactions could be that some

children with LI seek less social interaction, perhaps due to the nature of their linguistic

difficulties (Redmond & Rice, 1998). It may also be the case that social cognitive factors such

as reduced emotional competence play an important role (Brinton & Fujiki, in press). Whatever

the cause for the reduced number of peer contacts, children with LI are missing valuable

opportunities to interact with peers and to have much-needed practice with language and social interaction.

   Qualitative communication within social circles. The qualitative analysis of the child participants' communication yielded interesting information about their social networks. This information, however interesting, did not always provide a straightforward understanding of the social circles of children with LI. This section attempts to address the differences, and also the similarities, between the reports of the parents and those of their children, and how those reports compare between the children with LI and those of the typical children.

   Person with whom the child talked the most. Parental report indicated that children from both groups talked most and spent the most time with the mother, followed by a sibling. Child report, however, indicated that both the children with LI and the children with typical language spent the most time with a same-age peer. This discrepancy of ratings emphasized that there were differences between parent and child perceptions of the child's interactional partners. There did not appear to be meaningful differences between the language groups on this parameter of communication. It is interesting to note that similar results to the parent response were found in the pilot study (Whitworth, 2012), in that parents named family members as being who their child talked to and spent the most time with. The pilot study did not include child responses to the question.

   Favorite partner to talk to. Both children with LI and children with typical language indicated that their favorite person to talk to and to spend time with was a same-age peer. This was echoed by both groups of parents, although not by as big of a margin as was seen on the children's results. Parents of children with LI also indicated that their child liked to spend time with extended family members, fathers, and siblings, while parents of typical children said that

their child's favorite person to be with (after peers) was a sibling, father, mother, or extended

family member. The findings are also interesting in that it was expected that there would be a

difference between the language groups, not necessarily between parent and child reports. The

pilot study (Whitworth, 2012) noted that parents of both typical children and children with LI

indicated that their children most liked to spend time with a family member, with only three

parents of children with LI naming a favorite person who was not an immediate family member.

Topics of conversation. The majority of the children surveyed indicated numerous topics

of conversation that they liked to talk about, regardless of language ability. Parents of children

with typical language also were collectively able to name 13 topics of general conversation, as

opposed to parents of children with LI, who were able to name only seven topics. The favorite

subjects of discussion for children with LI differed little from those of children with typical

language, except one mention of an imaginary friend as a favorite subject. One distinctive reply

was given by a parent of a child with LI, who mentioned that her daughter's current favorite

subject to talk about was worrying about natural disasters. There were also three children with

LI who could not name a favorite or often-talked-about subject, as compared to one child with

typical language who was unable to name a favorite topic. This information differed from the

results found in the pilot study (Whitworth, 2012), in which parents of children with LI reported

fewer topics of conversation than did parents of typical children, often citing only one main

subject of interest or a limited number of topics.

Topics the child would like to talk about but did not. Children with LI listed many more

topics that were difficult for them to discuss than did children with typical language. Similar

results were also found in the pilot study (Whitworth, 2012). Parents of children with LI also

named more topics that were hard for their children to talk about than did the parents of typical

children. When asked about people who were hard for them to talk to, four children with LI named their dad, one child with LI named a teacher and a step-mother, and two children with typical language named siblings. Interestingly enough, no children with LI identified peers as being hard to talk with, although one parent of a child with LI did say that her child had a hard time talking with "other kids." Typical children tended to take the question of people that were hard to talk to literally, using distance or a death as a reason why it was hard to talk with someone. Children with LI listed several specific topics or people that were hard to talk about. Parents of these children with LI said that emotions and shyness contributed to communication difficulties, while parents of typical children noted that their children had a hard time with frustration, or when the child knew they were in trouble. Variability in these data made it challenging to pinpoint overarching topics of difficulty for children with LI. It was clear, however, that these children and their parents were able to identify more areas of difficulty regarding communication, indicating that these children had a harder time talking about a range of topics than typical children.

Limitations

The main limitation of this study was sample size. Although this study incorporated twice the sample size of the pilot study, it still was small. Although important trends and differences were noted, these findings cannot be confidently applied until a larger sample can be taken. Future studies should include a greater number of participants in order to confirm or alter current findings. Another limitation occurred when the overwhelming majority of the parent interviews took place with the child's mother (only two interviews were conducted with the father). This discrepancy between parents interviewed may have caused some inconsistency in

responses as parents tend to spend varying amounts of time with their children; such differences in time and closeness between parent and child could lead to differences if the parent interviewed did not typically spend as much time with the child in question as did the other parent. Future studies may want to consider the specific roles of parents interviewed (whether they are the main care provider of the child) to decrease the possibility of incomplete information.

A second related limitation was that the children with LI were identified based on enrollment in language intervention, and not on standardized testing. For several children in the group with LI, the available test scores indicated typical performance on the language measure used. A combination of enrollment in intervention and supporting test scores would be a stronger way of identifying participants. The fact that some of the children showed relatively typical scores may explain why the groups did not differ as expected on the number of friends named.

Another limitation is suggested by the child and parent discrepancies when listing the child's family and close friends, as compared with the much lower number of peers named in the picture task. These differences raise the possibility that children may not always be the most reliable self-reporters, even of constant factors such as family members living in the same house. It is also worth considering that children, especially those with language issues, may not always be accurate in their perceptions of reciprocal relationships. Future studies may want to examine the accuracy and reciprocity of peer relationships as named by children with LI. The possibility that self-reports by children are flawed may indicate that a parent report or ethnographic interview (Westby, 1990) would provide a valuable supplement to establish the accuracy of child report data when looking at the social interactions of children.

Clinical Implications

   Speech language pathologists in a school setting need to be aware children with LI may name others as close friends, but that these relationships may not be reciprocal. It will be important for clinicians to consider the quality of the friendships of these children. It will also be important to keep in mind that child self-report may not always be accurate, even on relatively straight forward facts such as the number of members in the family. Child self-reports, such as those used in this study, should be verified with the child's main care-providing parent to help ascertain the accuracy of the reports. The quantity of a child's communication may be addressed in various ways including working with parents, teachers, and caregivers to increase the child's opportunities to interact with others.

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Appendix A
Annotated Bibliography

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Purpose
      The purpose of this study was to examine the associations among early language skills, behavioral regulation skills, and two aspects of school-age social functioning (adaptability and social skills).

Method
      The study sample consisted of children with and without a familial risk for dyslexia; 107 in the familial risk group (54 boys, 53 girls), and 92 children in the control group (52 boys, 40 girls), between the ages of two and eight years of age. The authors analyzed the relations among children's language, behavioral regulation skills, and social functioning, at various ages.

Results
      Among the at-risk children, behavioral regulation skills mediated the association between early language skills and social outcomes.

Conclusions
      Behavioral regulation plays an important role in predicting social outcomes among children at risk for language difficulties. Children with SLI showed significantly lower levels of emotion regulation, so weak regulation skills may exacerbate social difficulties. At the same time, difficulties in language development may influence development of emotion regulation, which may hamper child's participation in social interactions with peers or adults. Successful social functioning requires social problem-solving skills, pro-social behavior, communication abilities, and self-regulation skills.

Blackstone, S. W., & Hunt Berg, M. (2003). *Social networks: A communication inventory for individuals with complex communication needs and their communication partners.* [Inventory booklet.] Monterey, CA: Augmentative Communication, Inc.

Purpose
      These authors present an inventory for identifying the main communication needs of individuals with complex communication needs. This inventory also helps to identify those main communication partners with whom the target individual needs to communicate on a regular basis, as well as other communication partners in various contexts (i.e.: paid interactant, acquaintance, family, strangers, etc.).

Botting, N., & Conti-Ramsden, G. (2000). Social and behavioral difficulties in children with language impairment. *Child Language Teaching and Therapy, 16,* 105. doi: 10.1177/0265659000016000201

Purpose
        The purpose of this study was to compare the secondary social and behavioral difficulties in three groups of children with LI: expressive difficulties, expressive and receptive difficulties, and those with complex LI (higher-order processing impairment).

Method
        In England, 242 children with LI were assessed on direct measures of peer competence, behavior, a cognition and a teacher measure of emotional/ behavioral behavior in children ages 6-7 years old. These children were then followed up with a year later, when they were 7-8 years old.

Results
        It is found that children with mainly expressive difficulties showed the least amount of secondary behavioral problems. Children with mixed expressive and receptive problems showed the greatest increase in behavioral problems. Children with complex receptive LI were rated as having more social difficulties with peers. Behavioral difficulties were associated with LI. By age eight, the difficulties of children with LI were found to be significantly more emotional than antisocial, especially for those with receptive and expressive language problems. The children with pragmatic language difficulties had more peer relationship problems.

Conclusion
        This study demonstrates that there is a relationship between LI and emotional behavioral difficulties.

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

Purpose
        These authors examine some of the social and emotional factors of particular importance to children with LI. The social and emotional difficulties of children with LI are reviewed. Suggestions for intervention are presented.

Conclusion
        Children with LI have a wide variety of problems with social interactions, and tend to demonstrate more withdrawn behaviors than do their language-typical peers. These children with LI also tend to stay on the outside of a group activity, sometimes joining in, but not in any relevant or important ways. These problems can affect later social interactions, and cause a negative effect on how the children with LI relate to others throughout their lives.

Brinton, B., Fujiki, M., Montague, E. C., & Hanton, J. L. (2000). Children with language
        impairment in cooperative work groups: A pilot study. *Language, Speech, and Hearing*
        Services in Schools, 31, 252-264. Retrieved from
        http://lshss.asha.org/cgi/content/abstract/31/3/252

Purpose

The purpose of this pilot study was to examine how the social behavior profile of children with LI influenced their ability to work in cooperative groups with peers.

Method

Each of six children with LI participated in four cooperative work groups. In each work group, the child interacted as part of a triad with two children with typical language (for a total of 48 typical children). The success of the interactions between the child with LI and the typical children were based upon the extent that all of the children participated, and worked together toward a joint goal.

Results

While the success of the individual interactions varied, the social profile of the child with LI was a good predictor of the child's ability to work with the group to achieve the common goal.

Conclusion

Children's social profile was the key factor in predicting the extent to which each child was included in the group work. Social profile seemed to have the most consistent influence on the ability of children with LI to collaborate with their peers. The social profiles of children with LI were not directly associated with the severity of their LI. This pilot study provided further evidence that LI and social problems are intertwined in complex ways, and cannot be characterized in terms of a single simple causal relationship.

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

Purpose

This study sought to address the question of whether children with SLI experience more social difficulties, and are bullied and victimized more than typical language peers.

Method

A group of 200 children (50 girls, 150 boys) attending language intervention classes in England were interviewed at 7 years of age, and again at 11 years of age. All of the children exhibited some degree of language difficulties.

Results

In this study it was found that 1/3 of the sample (of 200) children with SLI were regular targets of bullies, which was three times the prevalence of typical   children. More than half of the children demonstrated clinical-level difficulties with language-related issues. The children with SLI also showed more withdrawn behavior, less peer interaction, lower popularity, and fewer friendships.

Conclusion

Social and behavioral issues are not short-term problems for individuals with SLI, but rather increase with time. The outward appearance of a language disorder may contribute to negative attention and thus lead to behavioral issues throughout life.

Diamond, K., Le Furgy, W., & Blass, S. (1992). Attitudes of preschool children toward their peers with disabilities: A year-long investigation in integrated classrooms. *The Journal of Genetic Psychology, 154*(2), 215-221.

Purpose

To determine the levels of friendship and acceptance exhibited by preschool children towards peers with disabilities.

Method

Twenty-five typical language preschool children (13 boys, 12 girls), ages three to four-years-old, were given sociometric assessments at the beginning and end of the school year, in which they were asked to name their three "best friends" from their fully integrated classroom. Two classrooms of children participated in the study, and each class included four or five children with mild to severe disabilities, as well as six or seven typical language children. The typical children were asked to rate pictures of all of their classmates using the scales of "liked a lot", "liked a little", or "liked not at all." They were then asked to select three "best friends" from the pictures.

Results

It was found that at the beginning of the school year, the 3-year-olds used neither gender nor disability in identifying friends, but that the 4-year-olds "showed significant preferences for same-sex peers without disabilities as playmates" (215). Children with disabilities received significantly lower sociometric ratings than did their typical peers. Sociometric ratings for children both with and without disabilities dropped over time. Older children received higher scores from same-sex peers, and typical peers received significantly higher ratings then their classmates with disabilities.

Conclusion

These findings suggested that both gender and disability are important factors in determining young children's cognitive and affective reactions to their classmates, more so with increasing age.

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

Purpose

This study compared the friendship quality of 16-year-old adolescents with and without SLI.

Method

Participants were 120 adolescents with SLI who were attending language units in England for at least half of their school week, and 118 adolescents with typical language, recruited from English mainstream schools. Quality of friendships was measured using the Friendship and Social Relationships section of the Socio-Emotional Functioning Interview (SEF-I), which involved a detailed interview designed to examine aspects related to quality of social interactions in adolescents and adults. The self-report version was administered to the adolescents, while the informant version was given to their parents.

Results

As predicted, the adolescents with SLI showed poorer quality of friendships than their typical language peers. Regarding current friendships, all of the typical language adolescents indicated having one or more friends with whom they shared common interests, compared to 61% of the adolescents with SLI. In this study, earlier language measures were found to be associated with friendship quality in adolescents with SLI. These adolescents showed a tendency toward problem behaviors that was associated with poorer friendship quality, while a tendency toward pro-social behavior was associated with more favorable friendship quality.

Conclusion

Durkin and Conti-Ramsden found that early language and early emotional and behavioral difficulties were predictive of quality of friendship development in adolescents with SLI. The present findings underscore not only the fact that language abilities are related to friendship quality (with long term implications), but also that early confirmation of LI may serve as an indicator of a child's at-risk status in this respect.

Farmer, M. (2000). Language and social cognition in children with specific language
        impairment. *The Journal of Child Psychology and Psychiatry, 41*(5), 627-636.

Purpose

This study examined the links between the development of language and the development of social cognition in children with SLI.

Method

Thirty-two British school children (ages 10-11) participated in this study: eight children with SLI who attended a special school for communication difficulties, eight children with SLI who attended language classes in a mainstream school, eight children with typical language who were chronological age-matched to SLI children, and eight children with typical language who were language-matched to the children with SLI. Tests for vocabulary, sentence recall, non-word repetition, social competence and social behavior were administered.

Results

Significant differences between the scores of normally developing children and the scores of the children with SLI who attended the special language school were found for social cognition and ratings of social competence. Children with SLI from the integrated mainstream classrooms did not differ significantly from the other groups on these measures.

Conclusion

The results support the suggestion that LI is associated with impairments in the development of social cognition. There is some connection, but not a straightforward relationship between level of language development and level of socio-cognitive development.

Fujiki, M., Brinton, B., Isaacson, T., & Summers, C. (2001). Social behaviors of children with language impairment on the playground: A pilot study. *Language, Speech, and Hearing Services in Schools*, *32*(2), 101-113. doi:10.1044/0161-1461(2001/008)

Purpose

To compare the social behaviors of children with LI to those of their language-typical peers during recess.

Method

Eight children with LI (ages 6.1 – 10.7) along with eight age-matched peers were video-recorded for 45 minutes during morning and lunch recesses. The video samples were divided into five-second segments, and coded into subcategories (grouped into six general categories of: peer interaction, adult interaction, withdrawal, aggression, victimization, and other).

Results

Typical children spent significantly more time interacting with peers than did children with LI. Children with LI demonstrated more withdrawn behaviors than typical peers. Typically developing children spent 80% of their recess time interacting with their peers in conversation, games, dramatic play, and other activities, while the children with LI spent a little more than half of their recess time interacting with peers, mostly in social conversation. The children with LI spent more time isolated from peers than did typical children. Additionally, the children with LI often drifted from playgroup to playgroup, or walked or stood alone, doing little or nothing.

Several children with LI showed frequent reticent behaviors, suggesting that they wanted to interact more with their peers, but were fearful of doing so. Several children with LI also demonstrated a high number of instances of solitary-active withdrawal, suggesting that they were actively excluded by their peers. All of the typical children showed some degree of solitary-passive withdrawal, spending some time alone in constructive activities. The children with LI did not choose group activities that would be less demanding in terms of language comprehension and production (e.g., these children did not compensate for their language difficulties by engaging in nonverbal games). The children with LI spent much of their free time on the outskirts of social interaction, at least on the school playground.

Conclusion

Children with LI engage in fewer social interactions on the playground than their typical peers. Typical children spent significantly more time interacting with peers than did children with LI. It was also noted that the children with LI demonstrated more withdrawn behaviors than did the typical peers.

Fujiki, M., Brinton, B., Morgan, M., & Hart, C. H. (1999). Withdrawn and sociable behavior of children with language impairment. *Language, Speech & Hearing Services in Schools*, *30*(2), 183-195.

Purpose
         This study investigated teacher perceptions of withdrawn and sociable behavior in children with LI and their typical peers.

Method
         Classroom teachers rated the withdrawn and sociable behaviors of 41 children with LI and 41 peers with typical language development, using the Teacher Behavior Rating Scale (TBRS). Children were sampled from the age ranges of five to eight years and ten to thirteen years old. Subtypes of both withdrawn (solitary-passive withdrawal, solitary-active withdrawal, reticence), and sociable (impulse control/ likability, prosocial) behavior were examined.

Results
         Teachers rated children with LI as showing higher levels of reticent behavior than their typical peers (boys with LI were also rated as having higher levels of solitary-active withdrawal than girls with LI, or any typical child). For sociable behavior, children with LI were rated significantly below peers on impulse control/likeability and pro-social behavior. Boys showed more passive withdrawal than did girls. Almost all children with LI who were rated as demonstrating high levels of solitary passive withdrawal showed other types of withdrawal combined with poor ratings in the impulse control/likeability and/or pro-social subtypes. The teachers also perceived that almost all children with LI who showed reticence or solitary-active withdrawal also demonstrated limited sociable behavior.

Conclusion
         LI is not the sole factor leading to social problems in children with LI. Children with LI are susceptible to social problems that are characterized by withdrawal and limited sociable behavior.

Fujiki, M., Brinton B., & Todd, C. M. (1996). Social skills of children with specific language impairment. *Language, Speech, and Hearing Services in Schools, 27*(3), 195-202.

Purpose
         To examine the social skills of children with LI and make comparisons with language-typical peers.

Method
         Nineteen children (ages 8 – 12 years) with SLI and nineteen language-typical age-matched peers participated. Teachers were given the Social Skills Rating System- Teacher Form (SSRS-TF), to measure social skills of the children. Then an informal picture task was given to both groups to indicate whom each child interacted with for specific activities. The quality of peer relationships was then assessed using the Williams and Asher Loneliness Questionnaire.

Results
         Children with SLI differed from their peers on all three measures. The children with SLI were less socially skilled than their typical peers, and demonstrated a higher number of problem behaviors. Teachers rated students with SLI less favorably than their typical peers in social and

behavioral domains, despite the fact that these subjects had not been identified as having emotional or behavioral problems. Subjects with SLI differed from the typical subjects in the number of peers with whom they interacted (informal picture task). Subjects with SLI reported that they interacted with fewer peers in social activities such as board games, eating lunch, and sports activities. The subjects with SLI had fewer contacts with peers on common social activities.

Conclusion
        The children with SLI had poorer social skills, fewer peer relationships, and were less satisfied with their peer relationships when compared with typical classmates.

Gertner, B. L., Rice, M. L., & Hadley, P. A. (1994). Influence of communicative competence on
        peer preferences in a preschool classroom. *Journal of Speech. Language, & Hearing
        Research, 37*(4), 913-923. Retrieved from http://jslhr.asha.org/

Purpose
        This study sought to determine if the communicative abilities of children could impact their acceptance by peers, in a preschool classroom.

Method
        Thirty-one children participated in this study: nineteen boys and twelve girls, who were all enrolled in the Language Acquisition Preschool (LAP) at the University of Kansas. The children were separated into one of three language-status groups: normal language development (ND), speech or language disorders (S/LI), or learning English as a second language (ESL).   The children were shown photographs of all of the children in their class, and asked to point to three children with whom they liked to participate with in dramatic play. The children were next asked to point to children whom they did not like to play with, for a total of six classmates.

Results
        In this sample, language ability was a better predictor of peer status than age or intelligence. Children in the ND group were liked more than the children in the ESL or S/LI groups. Children with language limitations were the least likely to be identified as preferred playmates (at least for the dramatic play activity).
        Only three classmates appeared to be overtly disliked by their classmates- two from the S/LI group and one from the ESL group. It was clear that children with speech and LIs are more likely to lack reciprocal friendships than children in other groups (only one SLI child had more than one mutual friendship, and four SLI children were without any mutual friends). Among the children in the S/LI group, general receptive language appeared to be a discriminating factor between the individuals who fared well in regard to social acceptance and those who did not. Despite speech and expressive language limitations, children with age-appropriate receptive language skills received fewer negative nominations than average.

Discussion
        These findings support the idea that verbal abilities contribute to peer acceptance. Children with language limitations are less well equipped to use language to establish and maintain friendships in early childhood than are children with typically-developing language.

Children with language limitations are at risk for the negative consequences of unpopularity (for example, children who are not accepted by their peers often do not develop sufficient amounts of self-esteem.

Laws, G., Bates, G., Feuerstein, M., Mason-Apps, E., & White, C. (2012). Peer acceptance of children with language and communication impairments in a mainstream primary school: Associations with type of language difficulty, problem behaviors and a change in placement organization. *Child Language Teaching and Therapy, 28*(1), 73-86. doi: 10/1177/0265659011419234

Purpose
        This study examined peer acceptance for children with language or communication issues, in two classroom settings.

Method
        Participants included 249 children (125 boys, 124 girls), attending primary school in Bristol, UK. Children were asked to rate the same-sex children in their peer group on a 4-point scale of likeability (like, don't like, do not mind them, don't know child well enough to decide).

Results
        It was found that children with clear speech and more syntax ability had more positive peer relationships. Language and communication appeared to be more important for peer acceptance than classroom behavior.
        Changing children's principal placements from the language resource base to the mainstream classes had some beneficial effect; peer rejection was reduced and most children were more tolerated. Most children with language and communication difficulties experienced more peer rejection than mainstream peers. Peer acceptance was associated with severity of children's language and social communication difficulties. After movement to mainstream classroom, there was less overall peer rejection for LI children, although no significant increase in popularity. Informal interviews suggest that the LI children were happier being included in mainstream classes, and had developed new friendships with mainstream peers.

Conclusion
        Mainstream classrooms were associated with higher scores of likability among peers of children with LI. For LI children and their parents, greater social acceptance and children's self-esteem may be of equal importance as the child's progress with speech and language development.

Monopoli, W. J., & Kingston, S. (2012). The relationship among language ability, emotion regulation an social competence in second-grade students. *International Journal of Behavioral Development, 36*(5), 398-404. doi: 10.1177/0165025412446394

Purpose
        This study examined the relationships between language ability, emotion regulation, and social competence in second-grade children. The researchers sought to examine whether language ability mediates the relationship between emotion regulation and social competence.

Method
        Participants included 67 second-grade students at a public elementary school in Pennsylvania. The Peabody Picture Vocabulary Test- Fourth Edition (PPVT-IV) was used to measure receptive vocabulary in the children, while the teachers rated emotion regulation and social competence using the Emotion Regulation Checklist (ERC), and the Teacher Rating Scale (TRS) of the Behavioral Assessment System for Children-2 (BASC-2), respectively.

Results
        Strong relationships were found between receptive language ability and school problems, as well as adaptive skills. Results showed relationships between emotion regulation and social competence, and between language and aspects of social competence.

Conclusion
        It was concluded that language ability did not predict socio-emotional problems. Receptive vocabulary may be more important in development of girls' externalizing patterns than in boys, as language ability's prediction of externalizing issues was found only in girls.

Osman, D. M., Shohdi, S., & Aziz, A. A. (2011). Pragmatic difficulties in children with specific
        language impairment. *International Journal of Pediatric Otorhinolaryngology, 75,* 171-
        176. doi: 10.1016/j.ijporl.2010.10.028

Purpose
        This study sought to identify and clarify the pragmatic difficulties of children with SLI by comparing their pragmatic skills with those of language-typical peers.

Method
        Participants were 60 native Cairo-Egyptian Arabic-speaking children (ages 4 – 6 years old), 30 of whom were children with SLI, and 30 age-matched typical-language peers. Each child was administered the Arabic Pragmatic Screening tool.

Results
        The results revealed non-significant differences between the two groups, except for responding to greetings, and maintaining attention to task. Some children with SLI showed difficulty with initiating speech, and preferred to take a passive role in conversation. These children had to be asked questions in order to respond.
        In a task to verbally describe a picture, the children with SLI tended to focus on fine details in picture, rather than on the main idea. The children with SLI with showed an inability to identify the key point or topic in a sentence, and so they sometimes changed the subject suddenly, thinking that they were still on the same subject.

Conclusion
         This study showed a discrepancy between the pragmatic understanding and use of a group of children with SLI and their typical language peers. The pragmatic performance of such children can be expected to be even worse in daily life activities where pragmatic performance

will be affected by other factors such as the speaker's intentions and the surrounding circumstances.

Rice, M. L., Sell, M. A., & Hadley, P. A. (1991). Social interactions of speech- and language-impaired children. *Journal of Speech and Hearing Research, 34,* 1299-1307. Retrieved from http://jslhr.asha.org/cgi/content/abstraxt/34/6/1299

Purpose
        To examine the social interaction of children with LI in a preschool context, as compared with typical language peers.

Method
        This study examined the social interactions among 26 preschool children who were enrolled at the Language Acquisition Preschool (LAP) at the University of Kansas, and who presented either with normally developing English, SLI, speech impairment, or ESL. Children were initially enrolled in LAP in one of the four language groups, according to a battery of language tests.   On-line observation data was collected using the Social Interactive Coding System (SICS) to capture and record each child's patterns of initiations and responses in social situations. Conversational turns were coded according to initiations and responses, as well as addressee.

Results
        Normal language (NL) peers initiated utterances primarily to each other, had a higher percentage of longer responses, and were the preferred addressee across peer initiations. Children with limited communication skills were more likely to initiate communication with adults, produce shortened responses, or use nonverbal responses. ESL children were the least likely to initiate interactions and were the most likely to be avoided as the recipient of an initiation.

Conclusion
        There is evidence that preschool children are sensitive to relative communication skills, and make adjustments in social interactions accordingly. The social interactions of preschool children are influenced by their facility with language. Children who are developing language normally initiate with each other. Children with LI tend to initiate to adults.

Appendix B
School Testing Data for Children with LI

Participant	Gender	Age at Time of Interview	Enrolled in Intervention Services	School Testing Data
1	F	5;10	Y	Goldman-Fristoe Test of Articulation II: 39 errors, Standard Score = 57, Percentile Rank = 1 Peabody Picture Vocabulary Test IIIB: Standard Score = 87, Percentile Rank = 19
2	F	8;10	Y	WISC-IV = 85, 1. CELF, Receptive: 96, Expressive: 100. Total Language Score 97.
3	F	6;9	Y	PPVT-4: 69, CELF-4: receptive: 63, expressive: 57, language content: 62, language structure: 56, core language: 58
4	F	7;2	Y	Peabody Picture Vocabulary Test— III (PPVT-III): Standard Score=89, Percentile Rank=23 Test of Language Development— Primary Fourth Edition (TOLD-P:4): Age Appropriate: Picture Vocabulary (%=25), Oral Vocabulary (%=25), Sentence Imitation (%=25) Below Average: Syntactic Understanding (%=16) Poor: Relational Vocabulary (%=2), Morphological Completion (%=5) Very Poor : Word Articulation (%=<1)
5	F	7;4	Y	Peabody Picture Vocabulary Test-III (PPVT-III): Standard Score=80, Percentile Rank=9. Comprehensive Assessment of Spoken Language (CASL): Standard Score=66, Percentile Rank=1.
6	F	7;8	Y	Goldman-Fristoe Test 2 of Articulation (GFTA-II): Raw Score (number of errors) = 10, Standard Score = 85, Percentile = 11

					Peabody Picture Vocabulary Test--Third Edition (PPVT-III): Standard Score = 115, Percentile = 84
7	F	8;9		Y	Peabody Picture Vocabulary Test-III (PPVT-III): Standard Score = 84, Percentile Rank = 14 Comprehensive Assessment of Spoken Language (CASL): Subtest Standard Scores: Antonyms = 79, Syntax Construction = 60, Paragraph Comprehension = 76, Non-literal Language = 85, Pragmatic Judgment = 89, Composite Standard Score = 74, Composite Percentile Rank = 4
8	F	7;7		Y	PPVT-4: SS 89, (23rd%), PLS-4: Total lang. 82 (12th%), CELF-4: receptive: 77, expressive 59
9	F	10;8		Y	Test of Pragmatic Language (TOPL) Percentile Rank: 73, Quotient: 109
10	M	6;10		Y	Resource, KTEA-II: Comprehensive Achievement Composite: SS of 85, 16th percentile, Oral Fluency composite: SS of 50, <.1 percentile, Oral Language composite: SS of 76, 5th percentile
11	M	6;7		Y	Test of Language Development—Primary Fourth Edition (TOLD-P4) Age appropriate: Picture Vocabulary (%=25) Below average: Relational Vocabulary (%=9), Syntactic Understanding (%=16), Sentence Imitation (%=9), and Word Articulation (%=9) Poor range: Oral Vocabulary (%=2) and Morphological Completion (%=5) Composite Performance Scores: Below Average: Listening (%=18) Poor: Organizing (%=7), Grammar (%=5), Semantics (%=5), and Spoken Language (%=3), Speaking (%=1) composite. Peabody Picture Vocabulary Test—

				III (PPVT-III): Standard Score=86, Percentile Rank=18.
12	M	6;7	Y	CASL: 69
13	M	6;8	Y	WISC-IV, IQ: 88, CASL: 79, PPVT-IIIA: 68
14	M	9;5	Y	*Testing information not available.
15	M	9;6	Y	PPVT III: SS 75, 5th percentile, CELF-4: SS 44, 79, 49, 54
16	M	10;8	Y	CASL: standard score = 73, PPVT-IIIA: standard score = 85, WISC-IV IQ: 84

Appendix C
Child's Favorite Topics to Talk About

Child with LI Responses

(IDK = "I don't know")

1. Child: books, Disneyland; Parent: IDK
2. Child: IDK; Parent: IDK
3. Child: IDK; Parent: IDK
4. Child: neighbor, uncle; Parent: princesses, new movies
5. Child: friends, animals; Parent: IDK
6. Child: dolphins, imaginary friend; Parent: school facts, dolphins
7. Child: stuffed animals; Parent: IDK
8. Child: parents; Parent: IDK
9. Child: funny things, things that are interesting; Parent: worries, disasters, fires, bugs, rocks, nature
10. Child: friend; Parent: IDK
11. Child: soccer, Uno; Parent: soccer, outdoors, hunting and fishing, basketball
12. Child: IDK; Parent: IDK
13. Child: cat, friends, grownups; Parent: IDK
14. Child: dogs; Parent: IDK
15. Child: wars, airsoft guns, target shooting with friends; Parent: IDK
16. Child: school, video games, friends, playing with friends; Parent: IDK

Typical Child Responses

(IDK = "I don't know")

1. Child: recess; Parent: My Little Pony, Harry Potter, playing, activities, imagination
2. Child: funny things; Parent: IDK
3. Child: IDK; Parent: IDK
4. Child: IDK; Parent: what happened that day
5. Child: birthday; Parent: animals
6. Child: friends; Parent: books, school events, writing, dreams
7. Child: books; Parent: reading, books, baby sister
8. Child: future plans; Parent: IDK
9. Child: swimming; Parent: friends, drama, projects
10. Child: sports; Parent: sports, music, movies, reading, books
11. Child: alligators!; Parent: soccer, friends, school, what he likes, tooth loss
12. Child: doing homework, playing with friends; Parent: IDK
13. Child: animals; Parent: karate sports, Star Wars, day events, recess
14. Child: midgets, science, things that he wishes he could do; Parent: IDK
15. Child: Legos; Parent: Legos, basketball, Utah Jazz team
16. Child: sports, funny things; Parent: IDK

Appendix D
Child Interview

Introduction: *Hi. My name is Serena. I work with the research team from BYU. We are talking to children at (school name). I'd like to ask you some questions about people you talk to. It will take about 10 minutes. You can pick a sticker when we are finished. If you don't want to answer any of the questions I ask, you don't have to, or you can just say, "I don't know". Ready? Okay.*

1. *Think about your family. Who are the members of your family that you are around most of the time?* (find out relationship: mother, sister, etc.).

How often do you talk to _____? (ask for each person. If you do not get sufficient detail, follow up with "*Do you talk to them every week? Every day?*").

2. *Think about your friends. Think about the friends that you talk with most of the time. What are the names of the friends that you talk with a lot? (*alternate wording: *Can you name friends that you play with a lot?).*

*How often do you play with them? (*pause for response)
How do you know each other? (prompt: from church, school, neighbors...)? (pause for response)
What do you do together? (prompt: play, sports...)?

3. *Who are some other kids that you talk with? What are their names?* (could be neighbors, people from sports teams, church classes, girl/boy scouts, etc.).

Where do you talk to _____? How often do you talk to _____? (alternative wording: Do you talk every day? Every week?)

4. *Thinks about the adults that you talk to. Who are they?*(alternative wording: What are their names?), (These might be teachers, SLP, scout leaders, church leaders, music teachers, camp counselors, etc.)

How often do you talk with_____? (alternative wording: Do you talk to _____ every day? Every week?)

5. *Do you talk to other adults that you don't know really well? For example, these could be people in stores or at school. How often do you talk to _____?* (alternative wording: Do you talk to _____ every day? Every week?)

6. *Okay, now just think about talking. What do you like to talk about the most?*

7. *Who do you like to talk with the most?*

8. *Who is your favorite person to talk with?*

*9. What do you and (**most talked-to person**) talk about?* (if child does not say much, say, "Tell me three things that you and _____ talk about").

*10. What do you and (**favorite person**) talk about?* (if child does not say much, say, "Tell me three things that you an _____ talk about").

11. Think about talking again. Is there anything that you would like to talk about but can't? (Alternative wording: Are there things that are hard for you to talk about?)

12. Is there anyone that you would like to talk to but don't? (If yes: *Why do you think that you don't talk to him/ her?)*

13. Do you talk to anyone on the computer? (ex: e-mail, Skype, Facebook, etc.) *Who do you talk to on the computer the most?* (explore how much: once a week, once a month, etc.) *What do you talk about?*

Appendix E
Picture Task to Determine Interactive Activities with Peers

Here are some pictures of some kids doing some things (one picture for each of the following questions). I want to know what kinds of things you do.

1. These kids are playing at someone's house. Do you ever play at someone's house?
   Whose house do you play at?

2. These kids are drawing and coloring together. Do you ever draw or color with someone?
   Who do you draw or color with?

3. These kids are playing outside at recess. Who do you play with at recess?

4. These kids are riding bikes together. Do you ever ride bikes with other kids?
   Who do you ride bikes with?

5. These kids are playing games. Do you ever play games with other kids?
   Who do you play games with?

6. These kids are watching TV. Do you ever watch TV with other kids?
   Who do you watch TV with?

7. These kids are playing with toys. Do you ever play with toys?
   Who do you play toys with?

8. These kids are having a sleepover. Do you ever have a sleep over? Who do you sleep over with?

9. This kid is talking on the phone. Do you ever talk on the phone?
   Who do you talk on the phone with?

10. These kids are eating lunch at school. Do you ever eat lunch at school?
    Who do you eat lunch with?

    Conclusion: That's it, we're all done. Which sticker would you like? Okay, let's go back to class.

Appendix F
Parent Interview

Introduction: Hello, Mr./Mrs. _____. This is Serena Mickelson with the research team from BYU working at _____(name of elementary school). You were kind enough to return a permission form to us. Thank you. I'd like to ask you some questions about _____; it will take about 10 minutes. Is this a good time for you?

The goal of our research is to provide better speech and language services. To do this we want to know who children talk to the most. So, I'd like to ask you some questions about that.

1. Who are the family members that _____ interacts with at least once a week? (find out relationship, e.g., mother, sister, etc.) How often does _____ talk to each person?

2. Does _____ have friends that he/she talks with at least once a week? Is that a boy or a girl (if necessary), and how old are they? How do they know each other (from church, school, neighbors...)?

3. Are there other kids that _____ talks with at least once a week? These could be neighbors, people from sports teams, church classes or groups, brownies/scouts, or other organizations. How old is he/she (for each one)? Is that a boy or a girl?

4. Who are the adults that _____ talks with? These might be teachers, SLP, scout leaders, church leaders and teachers, music teachers, camp counselors, etc.
   How often does _____ interact with them?

5. Are there other adults that _____ talks with sometimes but doesn't know really well? For example, like people in stores. How often does _____ talk to _____?

6. Now, I would like to ask you some general questions about who _____ talks with.
   First, I would like to ask you about some of the things that _____ likes to talk about.

7. Overall, who does _____ talk with the most?

8. Who would you say is _____'s favorite person to talk to and to be with?

9. What are the things that_____ and (**person talked to the most)** talk about the most? If I were to ask you three things that they talk about the most, could you give me examples?

10. What are the things that _____ and (**favorite person)** talk about the most? If I were to ask you for the three things that they talk about the most could you give me examples?

11. Does _____ use the computer to talk with anyone? (ex: e-mail, Skype, Facebook, etc.) Who are the people that _____ talks to on the computer, and what do they talk about?

12. Is there anything you think _____ would like to talk about but can't because he/she doesn't have the ability to do so?

13. Is there anyone you think _____ would like to talk to but doesn't?

a. If yes, why do you think _____ doesn't talk to him/her?

Conclusion: Thank you for your time; that was very helpful information.

Appendix G
Parental Permission Form – Child with LI

Introduction: I am Professor Martin Fujiki, Brigham Young University. I am doing research to help children with communication problems improve their social interactional skills. Your child was selected because he/she is currently receiving speech language services In Alpine School District at _____ Elementary School.

Procedures: I will ask your child about the people he/she interacts during the course of a typical day. For example, "who do you talk to at school?" The interview will take less than 15 minutes.   I will also ask you similar questions. As with your child, the interview will take about 15 minutes.

Risks/Discomforts: There are no known risks associated with this treatment. Your child may miss class for about 15 minutes. We will work with your child's teacher to make sure that your child is taken out of class at the least disruptive time possible. The interview will also require about 15 minutes of your time. I will conduct the interview at your convenience, by phone.

Benefits: There are no direct benefits to the child.

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

Confidentiality: You and your child's participation will be confidential. All materials will be stored in locked cabinets in locked labs at BYU. Names will be removed from research materials and neither your name nor your child's name will ever be used in connection with any presentation of this research.

Participation: Participation is voluntary. If you give permission to include your child in the study, he/she will also be asked if he/she would like to participate. Even if you give

consent, your child may withdraw at any time without penalty. Also, you may withdraw him/her at any time, and you may withdrawal at any time. Refusal or withdrawal from the research will not affect services your child receives at the school.

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

Questions about your Rights as a Research Participant

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

I have read and understand the above consent and of my own free will allow my child _____ to participate in the study. I also agree to participate.

Signature_____ Date_____

Printed name_____

Appendix H
Parental Permission Form – Typical Child

Introduction: I am Professor Martin Fujiki, Brigham Young University. I am doing research to study the social interactions of children with communication disorders. Your child was selected because I need typically developing children to serve as a comparison group.

Procedures: I will ask your child about the people he/she interacts during the course of a typical day. For example, "who do you talk to at school?" The interview will take less than 15 minutes.   I will also ask you similar questions. As with your child, the interview will take about 15 minutes.

Risks/Discomforts: There are no known risks associated with this treatment. Your child may miss class for about 15 minutes. We will work with your child's teacher to make sure that your child is taken out of class at the least disruptive time possible. The interview will also require about 15 minutes of your time. I will conduct the interview at your convenience, by phone.

Benefits: There are no direct benefits to the child.

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

Confidentiality: You and your child's participation will be confidential. All materials will be stored in locked cabinets in locked labs at BYU. Names will be removed from research materials and neither your name nor your child's name will ever be used in connection with any presentation of this research.

Participation: Participation is voluntary. If you give permission to include your child in the study, he/she will also be asked if he/she would like to participate. Even if you give consent, your child may withdraw at any time without penalty. Also, you may withdraw

him/her at any time, and you may withdrawal at any time. Refusal or withdrawal from the research will not affect services your child receives at the school.

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

Questions about your Rights as a Research Participant

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

I have read and understand the above consent and of my own free will allow my child _____ to participate in the study. I also agree to participate.

Signature_____ Date_____

Printed name_____