The Impact of Effective Communication on the Quality of Parent-Child Interactions

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ABSTRACT

The Impact of Effective Communication on the Quality of Parent-Child Interactions

A thesis presented to the Department of Psychology

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At two years of age, nearly 13% of children in the United States have delays that would likely make them eligible for Early Intervention Program (EI) services (Rosenberg, Zhang, & Robinson, 2008). The proposed study seeks to examine whether the quality of written and spoken communication between parents and EI specialists is related to the quality of parent-child interactions during the delivery of such services. Quality of communication will be broken down into communication understandability, turn-taking, and the use of feedback and constructive language within conversations. Participants in this study will be limited to children under the age of three who are about to receive early intervention services for a speech delay, their parents and their early intervention service providers. The quality of parent-child interactions will be measured at the time of EI enrollment, prior to the start of services, and at six-month intervals for the duration of service delivery, using the Communication Play Protocol. It is hypothesized that effective methods of communication between the early intervention specialist and the parent will be related to higher quality interactions between the parents and their child.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Method</td>
<td>7</td>
</tr>
<tr>
<td>Analytical Plan</td>
<td>10</td>
</tr>
<tr>
<td>References</td>
<td>12</td>
</tr>
<tr>
<td>Appendix A</td>
<td>16</td>
</tr>
<tr>
<td>Appendix B</td>
<td>18</td>
</tr>
</tbody>
</table>
List of Figures

Figure 1 ................................................................................. 11
Figure 2 ................................................................................. 11
The Impact of Effective Communication on the Quality of Parent-Child Interactions

In the United States, Early Intervention (EI) is a government-mandated program for children from 0-3 years who have a diagnosed developmental delay or who are at a high risk for developing a delay (Department of Education, 2000). At two years of age, nearly 13% of children in the United States have delays that would likely make them eligible for EI services (Rosenberg, Zhang, & Robinson, 2008). EI services have historically been focused on family-centered care, which is done through parent-provider shared decision making (Tomasello, Manning, & Dulmus, 2010). However, parents involved in EI express a desire for more involvement in their services (Schonert-Reichl, & Brynelson, 2014). Current research indicates that parents desire effective communication with their service provider, but there is little evidence indicating what specific impacts the use of effective communication techniques can have on child outcomes.

Effective communication can be defined in a variety of ways. Sacks, Schegloff, and Jefferson (1974) defined it as highly structured and organized conversations. Effective communication has been found to include not only basic procedural aspects, but also informal small talk (Tveit, 2013). Effective communication between a parent and care provider has been linked with higher satisfaction in the care provided, more discussion of parental concerns, and greater adherence to recommendations (Nobile, & Drotar, 2003). Parent involvement is linked with positive education outcomes and improved development of pre-literacy skills in children (Hughes and Mac Naughton 2000; Powell et al. 2010). With school-aged children, effective
communication between parents and teachers is linked with increased parent involvement with their child and in the classroom (Moore, 2016).

When a child is enrolled in EI, a treatment plan is developed, goals are set, and the child is reevaluated every twelve months. Speech and language delays are one of the largest components of EI referrals. Approximately 15% of two-year-old children have an identifiable speech delay (Horwitz, Irwin, Briggs-Gowan, Heenan, Mendoza, & Carter, 2003). The proposed study will focus on children referred to EI for speech and language delays so that child outcomes can be compared.

Early childhood intervention programs promote childhood well-being and are linked with school readiness and increased parent involvement with their child (Reynolds, Ou, Mondi, & Hayakawa, 2017). Eligibility for these programs varies by state, and informed parental consent is always required. EI services are provided in as ecologically valid and naturalistic environments as possible, for example, in the child’s home, daycare, or other frequented location (Dept. of Education, 2000). For that reason, services are best provided with parents present, and parents play an important role in their child’s progress.

Mothers of children enrolled in EI are more likely to misunderstand typical developmental milestones (Zand et al., 2015). Because of this, intervention programs that focus on educating the mother, or other care provider, have been found to be significantly more effective in reducing child language delays than programs focused on the child (Roberts, & Kaiser, 2015).

An increase in the frequency and length of services is related to higher quality interactions (Suma, Adamson, Bakeman, Robins, & Abrams, 2016). However, families’ experiences of these programs differ wildly. High-need families are less likely to seek out
additional services, and this can be related to slower progress towards goals (Block, Rosenberg, Kellar-Guenter, Robinson, & Goetze, 2015). Parents with a low socioeconomic status have been found to view teachers as the expert in their children’s education and this can be linked with a lack of a perceived need for parent involvement (Crozier 1999). When communicating with parents, it is important to allow them to provide evidence of competence in their child. Parents who are encouraged to express their concerns are better able to comprehend the concerns seen by other professionals, and feel a greater involvement in their child’s progress (Pillet-Shore, 2015). Parents are more likely to feel motivated to work with their children when they receive regular communication from their child’s teachers (Watkins, 1997).

Current research suggests that parents’ general preferences for intervention services are consistent across individuals, indicating that most parents are looking for the same factors in their intervention services (Fabiano, Schatz, & Jerome, 2016). When interviewed, parents report a desire for factors like additional supports, the use of a team approach, and effective communication between their EI specialist and themselves (Fitzgerald, Ryan, & Fitzgerald, 2015; Pighini, Goelman, Buchanan, Schonert-Reichl, & Brynelsen, 2014). Parents frequently express a desire for improved quality of communication between the interventionist and themselves; however, little research has been done looking at the impact of this communication. Previous research on the subject has primarily been done using interview style questionnaires with parents and intervention specialists (Fabiano et al., 2016; Fitzgerald et al., 2015; Pighini et al., 2014).

Parents have been moving towards the use of new communication technologies, like email and text messaging (Thompson, Mazer, & Grady, 2015). However, spoken language in face-to-face communication and phone conversations is still used on a regular basis, along with
hand-written communications. Additionally, many factors might influence the quality of communication in either format, including the level of parent involvement, frequency of communications, use of parent’s preferred communication method, and the clarity of the communications (Moore, 2016). Even with the introduction of technology, a preferable pattern of initiating conversation is present; too little or too frequent interactions can lead to negative perceptions of the conversation (Shi, Shiomi, Kanda, Ishiguro, & Hagita, 2015). This study will focus on the understandability of communications between the parent and interventionist, turn-taking between the parent and interventionist, the use of constructive language, and the use of positive and negative feedback within conversational exchanges.

The understandability of communications between the parent and care provider can be measured using readability. Suggested readability levels for use with parents have steadily decreased over the years, with suggestions of no higher than ninth grade in 1984 and no higher than fifth grade in 2014 (Nagro & Stein, 2016). Actual readability levels of the general population are estimated to be almost 11th grade on average (Nagro & Stein, 2016). However, grade level completion does not necessarily parallel to reading grade level ability (Roit & Pfohl, 1984). The success of conversations is related to more than just the understandability of the conversation, it is also impacted by the word choice of each individual. The use of positive, negative, and constructive feedback can impact an individual’s perception of a conversation (Pennebaker, Booth, & Francis, 2007).

Measuring the success of an EI program is difficult and has been done in many ways. Successful outcomes can be broad, for example, improved family quality of life (Bhopty, Brown, & Lentin, 2016). Alternatively, they could be narrow, like an achievement of age appropriate skills or increase in specific skills (Hampton & Kaiser, 2016). In relation to speech and language
development, tools that measure interacting, requesting, and commenting, that commonly occur between 18 and 30-month age range can be beneficial (Wetherby & Prizant, 1992). The Communication Play Protocol, used by Adamson, Bakeman, Deckner, and Nelson (2012), measures parent child interaction and relates it to the success of an intervention. Research has indicated that greater improvements in parent child interactions resulted from services that are more frequent.

This study seeks to examine the impact of the quality of communication between the parent and the intervention specialist on the quality of parent-child interactions. Effective methods of communication will include understandability, turn taking, and the use of feedback and constructive language. This study seeks to determine if effective methods of communication between the EI specialist and the parent will be associated with higher quality interactions between the parent and their child. This will be tested using three separate hypotheses.

The first will look at understandability, or the decrease in complexity of communication, to see if that will be associated with an increase parent’s understanding and use of intervention techniques. The suggested reading level for parents in the US is no higher than fifth grade (Nagro & Stein, 2016). It is hypothesized that lower complexity will be associated with an increase in supported and coordinated joint communication between child and parent in the CPP.

Research indicates that too little or too frequent conversational transitions leads to a negative perception of the conversation (Shi, Shiomi, Kanda, Ishiguro, & Hagita, 2015). Strauss, Vicari, Valeri, D’Elia, Arima, and Fava (2012) found that parents who have negative or stressful experiences with EI are less involved in their child’s interventions. The second hypothesis is that turn-taking, or communication that is more frequent and back and forth between parents and intervention specialists, will produce quadratic results. Specifically, too much or too little turn-
taking will be associated with lower quality parent child communication, while a middle ground will be desirable and will be associated with higher quality parent child interactions.

Roberts and Kaiser (2015) found that programs that actively focused on the care provider, in addition to the child, were more effective at reducing language delays. This consideration for the parent will be observed through the types of language used. The final hypothesis is that more frequent use of positive feedback and constructive instructions will be associated with an increased use of intervention techniques. This will be evident by an increase in person and coordinated joint communication methods in the CPP.
Method

Participants

Participants in this study will include 100 children under the age of three who are about to receive EI services for a speech delay, their parents and their EI service providers. The number of participants was determined based on the number of predictive variables (Knofczynski, & Mundfrom, 2007). Informed consent will be obtained after all study procedures and methods have been approved by all relevant university and agency Institutional Review Boards, see Appendix B. Once parental informed consent is obtained, the process will be explained in age appropriate language to the child.

Measures

The quality of parent-child interactions will be measured using the Communication Play Protocol (Adamson et al., 2012; see Appendix A). This method controls for the individual reasons each child is receiving interventions, and the beginning abilities of parents and children. Once near the start of services and at six-month intervals for the duration of service delivery, children will be observed with the same parent through 30 minutes of semi-naturalistic interactions. The 30-minute period is broken down into six five-minute scenes that focus on three communicative contexts. These include social interacting, requesting, and commenting. Social interacting will be observed in the “music” scene and the “turn taking” scene. For both scenes, appropriate props will be provided, like instruments for the music scene and balls for the turn taking scene. Requesting will be encouraged in the “I want” scene and a “help me” scene, both of which will encourage the child to seek out help from their parent to get what they desire.
Commenting will be stimulated in the “art gallery” and “container” scenes, which will encourage parents to share pictures and objects with their child.

Throughout the six-month period, all written and spoken communication between the Early interventionist and the parent will be collected. Service providers will be asked to employ a voice-activated records all spoken communications, and provide a copy of all written communications. Spoken language will be transcribed for the purpose of analysis.

The understandability of communications between the parent and care provider can be measured using the Flesch–Kincaid Test of Readability. Many different methods have been used to measure readability; however, the Flesch–Kincaid Test has high reliability (Harris, 2011). Kappa’s for the Flesch–Kincaid Test of Readability are typically high, often between .81 and .84 (Nair & Ibrahim, 2015). Readability will be used to determine the understandability of all written and spoken communications between the service provider and parents. Readability is the amount of schooling necessary to read and make sense of a specific written passage (Nagro & Stein, 2016). This will be assessed based on word length, sentence length, paragraph length, and complexity of patterns within the document. This will be calculated using a formula that includes total words, the average sentence length, and the average number or syllables per word. Longer sentences and frequent use of longer words result in more difficult reading levels (Flesch, 1948).

Turn taking will be measured based on who initiates conversation, and the amount of back and forth between the parent and the service provider. This will be recorded using the transcripts from spoken and written communications.

Feedback and constructive language will be measured using the Linguistic Inquiry and Word Count. This is a computer program used to measure the number of positive, negative, and cognitive words used in written and spoken language (Pennebaker, Booth, & Francis, 2007).
Kappa’s for the Linguistic Inquiry and Word Count typically range from .92 and .55 depending on how it is calculated (Pennebaker at al., 2007). Transcripts of the written and spoken language will be run through the system, which measures the frequency of words within different subcategories. Positive words are those used in language to communicate pleasant feelings like love, nice, or sweet. Negative words are those that are used to communicate displeasure like hurt, ugly, or nasty. Cognitive words are those used to show the thought process like know, because, or without. This shows us how individuals are communicating. The program will analyze the types of feedback given and constructive language use.

**Procedure**

Participants will be recruited from EI service providers soon after their child has been found eligible for EI services. Participants will be informed of the purpose of the study and asked to sign an informed consent form. They will be informed that their participation in the study will not influence their EI services and they are free to withdraw from the study at any point. Measures will be taken are regular six-month intervals, when goals are reassessed. Each measure will be rated by qualified individuals who are blind to the hypotheses of the study.
Analytical Plan

Data from this study will be analyzed using structural equation modeling. It is expected that a negative linear relationship will exist between readability and the quality of parent-child interactions and a quadratic relationship will exist between turn-taking and the quality of parent-child interactions. A positive linear relationship will exist between positive feedback use and the quality of parent-child interactions, a negative linear relationship will exist between negative feedback use and the quality of parent-child interactions, and a positive linear relationship will exist between constructive language use and the quality of parent-child interactions.

As an example, readability data taken throughout the time children are involved in EI services would be compiled to determine a readability score for each child. This information would be compared with the change in the average CPP score over the time children were receiving services. It is expected that a decrease in readability scores would be associated with an increase in parent child communications. This expected relationship can be seen in figure 1. Figure 2 shows an example of the predicted quadratic relationship between turn-taking and the quality of parent-child interactions. This data would be based on the total amount of turn-taking and the change in the average CPP score over the time children were receiving services.
Figure 1. A representation of the expected distribution of parent child communication scores by readability scores.

Figure 2. A representation of the expected distribution of parent child communication scores by turn-taking.
References


Appendix A
Communication Play Protocol

The communication play protocol was developed by Adamson and Bakeman (1999), to examine the broad path of early communication development in which verbal milestones are embedded. It is intended for use with typically developing children 18 to 30 months and atypically developing children 18 to 48 months, and is typically reliable with kappa values generally ranging from .79 to .94 (Adamson & Bakeman, 2006). In this protocol children are observed with the same parent through 30 minutes of semi-naturalistic interactions within a neutral play room environment. The 30-minute period is broken down into six five-minute semi-structured scenes that focus on three communicative contexts. These include social interacting, requesting, and commenting.

Each of these three communicative contexts are observed in two separate scenes. Social interacting is observed in the “music” scene and the “turn taking” scene. For both scenes appropriate props are provided, these include instruments for the music scene and balls for the turn taking scene. In the music scene, the parent is encouraged to sing and dance with their child. Requesting is encouraged in the “I want” scene and a “help me” scene, both of which encourage the child to seek out help from their parent to get what they desire. In the “I want” scene attractive toys are placed on a high shelf, out of the child’s reach, so that the child requires help to get them. In the “help me” scene the child is presented with toys that are too difficult for the
child to use on their own, like bubbles or balloons. Commenting is stimulated in the “art gallery” and “container” scenes, which encourage parents to share pictures and objects with their child. Before each scene parents are given a cue card that specifies the scene’s plot and what props they can use during the scene. The order of the scenes was random, however one scene from each of the three communicative contexts is in the first half of the communication play. Each scene is video recorded for later coding. Each scene is coded by trained and reliable coders, they have the ability to view the scene as many times as needed, at regular and slow speeds. The coders apply a coding scheme that separates the child’s behavior into 6 mutually exclusive codes that last at least 3 seconds. To establish inter-rater reliability, at least 15% of the scenes were rated by two raters. The six codes used by raters are as follows:

1. Unengaged: The child looks to be uninvolved with the parent, toys, or activity.
2. Onlooking: The child is watching the parent, but is not engaged in the activity.
3. Person: The child is involved with the parent as a social partner.
4. Object: The child is actively playing with the toys alone, paying attention only to the objects at hand.
5. Supported joint: The child and parent are actively involved with the same toy or activity, but the child does not indicate that they recognize the parent’s participation.
6. Coordinated joint: The child and parent are actively involved with the same toy or activity, and the child is regularly acknowledging the parent’s participation.

Information presented in this appendix is from the original Communication Play Protocol unless otherwise sited (Adamson & Bakeman, 1999).
Appendix B
Informed Consent Form

The Impact of Effective Communication on the Quality of Parent-Child Interactions

You are invited to participate in a research study being conducted by Jennifer Martz, a Master’s student at Brandeis University. The study is being conducted under the supervision of Dr. Joseph Cunningham, Professor of Psychology at Brandeis University.

The following information is provided to help you make an informed decision whether to participate. If you have any questions, please do not hesitate to ask.

If you decide to participate in this study you will be asked to sign this form. A copy of the signed form will be given to you to keep for your records—it has important information, including whom to contact if you have questions in the future.

What is this study about?
We are conducting this research study to learn more about the impact of communication on the outcomes of Early Intervention.

Why have we asked you to participate?
We are asking you to take part in this research study because you have a child between the ages of 12 and 36 months who has been found eligible for Early Intervention services, because of a speech delay.

What will you be asked to do if you participate?
If you decide to participate in this study, you will be asked to participate in semi-structured play with your child. It will consist of 6 short scenes, in which you will be given different toys to use with your child. We would like you to participate in this activity every 6 months for the time your child is receiving services.

We would like to use video and audio recording during all interactions with your early intervention specialist, and during the semi-structured play time. We will ask for your consent to use audio and video recordings at the end of this form.

The semi-structured play will take about 30 minutes to complete every 6 months and will be conducted in a lab play setting.

Are there any possible risks to you?
There is always the risk that your information could be accidently disclosed to people not connected with this study; however, we will do our utmost to secure your information so this does not happen.

**Will you benefit from participating in the study?**
You will not benefit directly by participating in this study, however we hope the study will result in information that can be used to help children and families.

**Will it cost you anything to participate in the study?**
The only cost to you will be your time.

**Will you be compensated or receive anything for participating in the study?**
There is no monetary compensation for this study.

**How will your information be kept private?**
Measures will be taken to ensure confidentiality, such as not including any identifying information on the forms used within the study and keeping all forms securely stored by the researcher.

The audio and video tapes of the play time and intervention sessions will be transcribed without any information that could identify you. After it is transcribed, it will be destroyed.

**What if you don’t want to participate or change your mind partway through?**
You may refuse to participate at any time without any negative consequence. You have the right to change your mind about being in the study and stop after the study has started. If the study design or use of the data is changed, you will be informed and your consent obtained for the revised research study. If you choose to withdraw, your data will not be used and will be destroyed.

**Who can you call if you have more questions?**
If you have any questions about the research being conducted or your participation in the research, feel free to contact the researchers at 603-769-1196 or jmartz@brandeis.edu.

If you have any questions about your rights as a subject in this research, would like to speak with someone other than the researchers about concerns you have about the study, or in the event the researchers cannot be reached, please contact the Brandeis University IRB (the University’s Committee for the Protection of Human Subjects) at 781-736-8133 or irb@brandeis.edu.

**Subject Consent**
I have read the contents of this consent form, have been encouraged to ask questions, and have received satisfactory answers to my questions. I understand that my participation is voluntary and that I may withdraw my participation at any time without penalty. I voluntarily agree to participate in this study.

☐ I do ☐ I do not give you my permission to make an audio/video tape of me during this study.
Participant’s Signature______________________________________________ Date ________
Investigator’s Signature______________________________________________ Date ________