

Background

Language impairment (LI) is the most prevalent disorder experienced by preschoolers in the US (Carlson et al. 2006).

- 75% of preschoolers with disabilities: LI is their primary or secondary disability
- 46% of preschoolers with disabilities: LI is their primary diagnosis

Children with LI are at risk for lower outcomes in:

- Literacy development
- Mental health
- Economic opportunity (Law et al., 2009)

Parents' role in their children's education is particularly important for children with LI.

- IDEA mandates that educators and service providers give parents "meaningful opportunities" to be involved in their children's education (IDEA, sec. 601)
- Children with LI require more communicative interactions to learn language than typically developing (TD) children (Yoder et al., 1995)
- Parents of children with LI tend to:
 - Spend less time interacting with their children than parents of TD children (Alston et al., 2001)
 - Be less responsive and engaged in their children's communication development than parents of TD children (Vigil et al., 2005)

Numerous studies demonstrate that parents can be trained to implement language interventions with their children with LI (Buschmann et al., 2009)

Additionally, studies show that online training programs are effective in promoting parenting skills (Baggett et al., 2010)

- Parents have reported high satisfaction with using online trainings (Baggett et al., 2010)
- Online training may be an effective approach to training parents of children with LI to support their children's language development.

The purpose of this study is to develop an online training program with personalized coaching for parents of preschoolers with LI

Parents Plus

Parents Plus trains parents to use Focused Stimulation (FS) to foster their children's language development

- **Randomized controlled trial studies have shown that FS has positive effects on children's language outcomes:**
 - Increase vocabulary size in preschool children (Girolametto et al., 1995)
 - Increase vocabulary and morphosyntax repertoires in toddlers (Girolametto et al., 1996)
- **Parents can implement FS as effectively as clinicians** (Fey et al., 1993)

Focused Stimulation

Focused Stimulation has 3 major components or steps:

1. Parent models the language target during an interaction
 - Language targets should be modeled a minimum of 5 times during an interaction in order to provide sufficient exposure (Lederer, 2001)
2. Parent pauses, giving child an opportunity to respond
 - Child is not required to repeat the target (Fischel & Landry, 2008)
3. Parent provides feedback based on the child's response

Components of Parents Plus Program

1. **Online Parent Training via Parents Plus iOS App**
 - a. Multimedia training sessions
 - Information presented in text and visuals
 - Exemplar videos
 - Comprehension checks
 - b. Content
 - i. Session 1: Introduction to Parents Plus and Language Development
 - ii. Session 2: Focused Stimulation
 - iii. Session 3: Using Focused Stimulation in Routines
 - iv. Boosters: Following Child's Lead & Behavior in FS
2. **Targeted Coaching**
 - a. Home or Remote (via Zoom) visits
 - b. Messaging via Parents Plus iOS app

Iterative Development of Parents Plus

- Phase 1 –Development of Parent Training
- Module content was drafted
 - Professional and parent advisory boards provided feedback on module content and presentation
 - Modules were revised and transformed into an iOS app
- Phase 2 – Beta Testing Round 1**
- **Parents complete training on app**
 - **Parents implement FS for 4 weeks with coaching**
 - Primary goal: Examination of feasibility, usability, and fidelity
 - Parents Plus program revised based on Beta Testing 1 results
- Phase 3 – Beta Testing Round 2
- Parents complete revised training on app
 - Parents implement FS for 12 weeks with coaching
 - Primary goal: Examination of feasibility, usability, and fidelity
 - Parents Plus revised based on Beta Testing 2 results
- Phase 4 – Randomized Controlled Trial
- Mother-child dyads randomly assigned to Parents Plus or control conditions
 - Primary goals: Examination of changes in parent language behavior and child language skills and continued examination of feasibility, usability and fidelity

Study Objectives

The current study investigates the feasibility and social validity of the Parents Plus program during Beta Testing Round 1. Specifically, we examined:

1. **Is the online (app-based) parent training program feasible?**
2. **What are parents' perceptions of the online parent training program?**
3. **Is online (app-based) coaching feasible?**
4. **What are parents' perceptions of online coaching?**

Methods

Participants

- All mothers who have preschoolers with language impairment and speak English in the home
- Advisory Board: 5 mothers
 - 1 Latina, 4 White
 - 1 high school, 2 BA, and 2 MA
- Beta 1: 5 mothers
 - 3 African American, 2 White
 - 1 some college, 1 Associate's degree, 1 BA, 2 MA

Beta Testing Round 1 Procedures

Week	Component
1	Initial Home Visit Parents Plus coach meets parent/child in their home to orient them to the app and program.
1-3	Parents complete Parents Plus training on app
4	Pre-Implementation Home Visit Parents Plus coach meets parent/child in their home to prepare them for FS implementation and chose language targets.
4-8	Parent implements FS at home

Feasibility Measures

App Feedback Questions

- Feasibility questions about the app were embedded at the end of every module (i.e., 7 time points) and were recorded through the Parents Plus app
 - Questions were forced choice: 'Very, Somewhat, Not'
- #### Comprehension Questions
- Feasibility of online parent training was measured by parents' acquisition of content knowledge
 - Comprehension questions were presented at the end of each session and were recorded through the Parents Plus app
 - Questions were forced choice (e.g., True/False, Multiple Choice, Select All That Apply)

Social Validity Measures

- Social validity questions regarding the Parents Plus app and coaching were collected after the parents finished the online training
- Responses were recorded through a Qualtrics survey
- Questions were forced choice followed by open-ended questions about what parents did not like about each component and what they thought could be improved

Results

Feasibility

Question		Very	Somewhat
Information was easy to understand	Parents	100%	
	Parent AB	100%	
Information was helpful	Parents	100%	
	Parent AB	80%	20%
Information was presented in an enjoyable way	Parents	80%	20%
	Parent AB	100%	
Example videos were helpful.	Parents	80%	20%
	Parent AB	80%	20%
The number of example videos were helpful.	Parents	60%	20% too many 20% too few
	Parent AB	100%	

Comprehension Questions	Average Score
Session 1 – Parents Plus Program & Language	95%
Session 2 – FS	91%
Session 3 – Routines	100%

Social Validity

Social Validity Questions	Average Score
Enjoyed learning on app	100% really enjoyed
Enjoyed messaging coach on app	50% really enjoyed 50% somewhat • Was not sure if message was received • Did not check app often
Frequency of messages from coach	100% just right
Coach gave helpful information	100% very helpful
Coach responded quickly	100% responded quickly
Communicating with coach was good use of time	100% good use of time
Felt comfortable working with coach	100% felt very comfortable

Open ended question about experience with Parents Plus:

- The app is very helpful to me understand how to communicate with my son and also to understand what he is saying to me.
- Very exciting experience.
- I love being able to test out the Parent Plus app and be able to give my feedback! This is something I wish I had when my son first started speech/language therapy!

Discussion & Next Steps

Feasibility & Social Validity

- Overall, the Parents Plus iOS app is a feasible approach to train parents on FS. Content presentation is enjoyable and parents are able to learn
- Additionally, parents had a positive perception of the Parents Plus app and their coach

Next Steps

- Examine parents' fidelity of implementation of FS and provide personalized coaching to support FS implementation
- Make necessary revisions to Parents Plus content and procedures
 - Conduct Beta Testing 2 & revise as needed
 - Conduct a randomized controlled trial to determine promise of Parents Plus in improving parents' language facilitation and children's language skills