



# Using LENA to Evaluate the Effectiveness of a Parent Training Program

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## Significance

- Children who are deaf and hard of hearing (DHH) face challenges with the acquisition of language and literacy
- Vast majority of DHH literacy research focused on practices with teachers because of a history of late-identification
- Recent changes create a greater potential for parents as the 'first teacher' for emergent literacy
  - newborn screening** means early identification
  - earlier intervention**
- Shared reading is a robust practice for the development of language with hearing children
- Minimal research with children who are DHH

## Overview

**12-week single-case design study** (multiple baseline across content) examined changes in parent behavior in three target areas that foster language development in children who are DHH. Four mother child dyads participated. All children wore cochlear implants and were between 3.5-5.11 years of age. The parent training intervention was community based, interactive, and included opportunities for parents to practice with their own child.

### Specific targeted strategies &

#### General principles of the intervention:

- Provided tools for choosing developmentally appropriate books
- Encouraged use of a quiet reading area
- Provided tips for targeting vocabulary in each read
- Encouraged use of repeated readings

## Parent Training Intervention

### "Lunch Bunch"

- Three parent trainings
- General information on importance of shared reading
- Direct instruction on one strategy per training
- 1 ½ hour sessions
- Free childcare and lunch provided
- Opportunity to interact with/ ask questions of other participants
- Age-appropriate books present and available for check-out
- Strategy practice time (with their child) with guided feedback

**After the training**  
Provided handouts at three levels: (1) low, (2) average range, and (3) typical language levels

#### Language Expansion

**Push In** language - tell your child what a word or idea is or what it means.

**Pull Out** language - give your child a chance to say something about the word or picture.

**Expand your child's response to push in & pull out language:**

1. Ask open-ended questions
2. Add one or two more words to what your child says.
3. You can add **new vocabulary, ideas or grammatical structures.**

**Example New Word**

Parent: He's eating ice cream. How does it taste?  
Child says: Yummy.  
Parent: That's right, it tastes **delicious**! Delicious is really yummy!

**Example Grammatical Structure**

Parent: He's running a race. How is he doing?  
Child says: He winning.  
Parent: That's right, he **is** winning the race.

**Extension**

Carry over words or ideas to something your child does at home. Use the new word at the dinner table or while playing.

#### Language Expansion

**Emerging** language: Ask open-ended questions and expand your child's answers (one or two more words with a new idea, grammatical structure, or vocabulary word) to encourage what they are already saying. You are pushing in language for ideas that may be familiar to your child - but they don't yet know the words. Don't be afraid to repeat the same word or structure in different questions. As you continue your second, third, and fourth read, your child will be able to say back some of the words you've given them.

**Read the adult and child conversations below for ideas...**

**Examples:**

What time is it? Night night that's right, **Baby Llama is going right night.**

What's baby llama doing? Brush teeth. Good! **Baby Llama is brushing his teeth.**

Why is baby llama scared? He scared. Yes, **he is scared** because he's all alone.

What's baby llama doing? Baby llama bad boy. **Baby Llama is hollering and crying - he's fussy.**

**THE BEST MOUSE COOKIE**

What is mouse making/baking? He make cookies. Yes, **he is making cookies.**

Why is mouse throwing the cookies out? Cookies black. Yes they are! **The cookies are burnt. Burnt is when they are cooked too long - they don't taste good when they are cooked too long!**

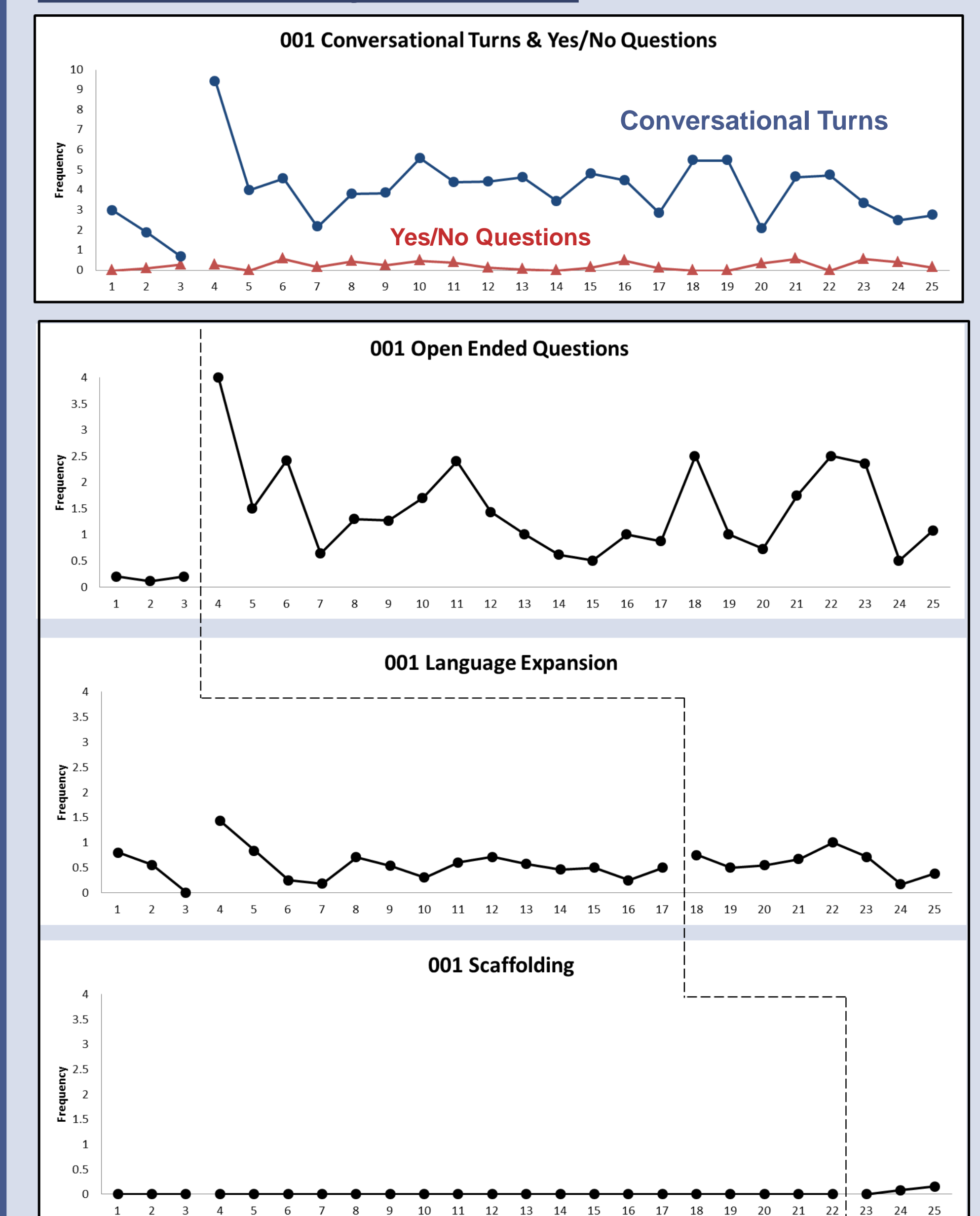
What is mouse doing here? Share cookie boy Good! **Mouse is sharing with his friend the boy.**

## Results

	Conversational Turns			
	Mean Baseline	Mean Intervention	Mean Difference	PND <sup>1</sup>
Dyad 1	1.86	4.26	2.40	79%
Dyad 2	2.94	2.91	-0.03	27%
Dyad 3	1.40	2.56	1.16	72%
Dyad 4	1.70	3.19	1.49	77%

<sup>1</sup>PND= Percent of Non-Overlapping Data

### Sample: Dyad 001



- As a result of the intervention, three of the four dyads showed increases in parent behavior that support language development in children who are DHH.

*For families with children who are DHH, this parent training intervention is effective to **increase open-ended questions and conversational turns**; preliminary results suggest effectiveness for scaffolding.*

## Procedures

Lead researcher conducted the three parent trainings. Parents were asked to audio record four shared reading sessions a week (with one book) using LENA. Parents returned DLP at the end of the week for downloading and DLP was returned to the parents with a new book via child's book bag.

## Coding

- Conversational turns
- Open-ended prompts: e.g. open-ended questions, fill-in-the-blank, either/or questions
- Language expansion: parent adding a word(s) or grammatical structure(s) to child's utterance
- Scaffolding: open-ended question followed by a simplification of the question (fill-in-the-blank, either/or, modeling the answer)