Preliminary findings of a parent-focused intervention using mobile and wearable technology to enrich the everyday language environments of young children

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Disclosures

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Background

- **Listening and oral language skills**
  - (Cruz et al., 2013)

- **Parent-Child Interactions**
  - (Spencer, 2004; DesJardin and Eisenberg, 2007; Zaidman-Zait & Young, 2008)

- **Early Auditory Access**
  - (Levine et al., 2016; Sacks et al., 2014)

- **Language Exposure**
  - (Geers et al., 2009; Hart & Risley, 1995)
Engaging parents using technology

1. Language ENvironment Analysis (LENA) System

- Audio recorder and language processor
- Speech recognition software quantifies child’s auditory-language environment
- Parents received feedback
  - Adult Word Count
  - Conversational Turn Count
  - Child Vocalisation Count
  - Overall Audio Environment

2. Mobile App

- Daily tips for parents
- Short developmentally appropriate activities
Aims and Objectives

Aim 1
To explore whether there were measurable changes in language behaviours with LENA feedback and use of the mobile app

Aim 2
Pilot Trial

Participants (5 dyads)

- Typically developing hearing children
  Mean age=15 months (aged between 6 months to 3 years)

- Mothers were smartphone users
  Mean age= 39 years

- English was the main language spoken at home

- Both parents were living at home
Changes in Adult Word Count Across Conditions

(F(2, 471)=3.17, p<0.05)
Changes in Conversational Turns Across Conditions

\[(F(2, 471) = 4.97, p<0.05)\]
Parental perspective on using digital technologies

Benefits
Objective information about communication behaviours
Ideas for providing language

Barriers
Familiarity and knowledge (Personal factors)
Cost and access to technology (External factors)
Summary of Findings

- Significant increase in group mean Adult Word and Conversational Turn Counts (hourly) with LENA Feedback

- Important to consider both personal and external factors when implementing a technological approach
Next Steps

- 12-Week Trial (Australian Context)
- Children with significant hearing loss
- Use of technology in EI survey
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References


