The role of feedback and use of a mobile app in supporting adult-child language interactions in the home

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Disclosures

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Early child language experiences

- Family and home language environment (Ambrose et al., 2015; Gilkerson et al., 2017; Holt et al., 2012; Zauche et al., 2017)

- Amount of parental talk and interactions with children in second year of life predict later child language outcomes (Hart and Risley, 1995; Richards et al., 2018)

- Encouraging parental language input to children through everyday home activities (Tamis-Lemonda et al., 2018)
  - Adult Language Exposure (VanDam et al., 2012)
  - Adult-Child Conversational Exchanges (Zimmerman et al., 2009)
Extending intervention to a child’s natural environment

Language ENvironment Analysis (LENA)

- Audio recorder and automated language processor
- Analyses quantified information about child’s sound and language environment
  - Adult Word Count
  - Conversational Turn Count
  - Child Vocalisation Count
  - Overall Audio Environment

(Gilkerson & Richards, 2008)

- Personalised feedback based on day-long LENA recordings provided to mothers
Supporting Parent-Child interactions in everyday life

Daily **vroom** Mobile App

- Recognises home as an influential context for early development \(\text{(Galinsky et al., 2017)}\)
- Promotes parental involvement in a child’s early experiences
- Daily reminder for parents
- Short suggested activities which complement everyday routines
Study Aims

Aim 1

To investigate whether changes in Adult Word Count (AWC) and Conversational Turns (CT) from baseline were demonstrated after:

- **Feedback** was provided to mothers based on their LENA counts, and
- **Feedback** was provided to mothers based on their LENA counts + Use of the Daily Vroom mobile app (*LFA condition*)
Participants (10 Mother-Child Dyads)

- Primary Caregiver
- Fluent in English
- Smartphone user
- Between 28 to 41 years of age (Mean 36.8 years; SD 4.02)

- Aged between 6 months to 3 years (Mean 1.6 years; SD 0.75)
- Typically developing, no medical concerns
  - 6 children with hearing within the normal range
  - 4 children with significant hearing loss; using hearing aids and/or cochlear implants
    (Unaided 3 Freq PTA Mean 90.3 dB HL; SD 23.5)
Parent-implemented intervention trial design

Baseline + 3 Study Conditions:

- LENA recordings only (LO condition)
- Feedback to mothers based on LENA counts (LF condition)
- Feedback to mothers based on LENA counts + Use of the mobile App (LFA condition)

LENA recordings taken in each condition

- Weekly LENA recordings for duration of trial (2-3 months)
- Up to 16 hours per LENA recording
- Daily Activity Logs completed on recording days
Mean Percentage Changes in Adult Word Count (N=10)

F(2, 5554)=21.22, p< 0.001

Baseline | LEN A Only Condition (LO) | After LEN A Feedback (LF) | After LEN A Feedback + App (LFA)

* +19.9%
* +14.9%
Mean Percentage Changes in Conversational Turns (N=10)

Mean CT Percentage Change from Baseline (%)

Baseline
LENA Only Condition (LO)
After LENA Feedback (LF)
After LENA Feedback + App (LFA)

F(2, 5554)=36.4, p< 0.001
Aim 2. Exploring Maternal Ratings of the Mobile App

What is your overall (star) rating of the app?

1. ★ One of the worst apps I’ve used
2. ★★
3. ★★★ Average
4. ★★★★
5. ★★★★★ One of the best apps I’ve used

Mean = 3.78
Median = 4

(uMARS; Stoyanov et al., 2016)
Summary of Findings and Conclusion

- Significant changes in language counts (adult word count, conversational turns) from baseline were observed for this sample of mother-child dyads after they received LENA feedback.

- Mothers assigned the app an average to good star rating (*mean* 3.78; *median* 4), indicating a positive preference for using it.

- Exploring changes in parental language behaviours following the use of the Daily Vroom App alone could be considered in future research.
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For further information, please contact dawn.choo@unimelb.edu.au

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References


