Similarities and differences in linguistic environment across three childcare settings

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Research Question

What are the characteristics that differentiate the linguistic environments of infants and toddlers in daycare and home settings?

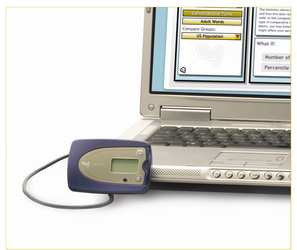
Introduction & Methods

Background

- Close to half of children in North America are in child care outside the home before the age of 2 years [1, 2]
- Overall, children at home and in daycare show similar overall language development [3]
- But... *The language environment matters*
  - Higher quality child care is correlated with better language scores [ibid]
  - Language input measures correlated with better language scores [e.g. 4]
- There are no systematic analyses of linguistic similarities/differences across childcare settings

Analysis

LENA digital audio recording system/software



- Reliability ranges between 70 and 85% [5]
- Automated LENA measures
- Transcribed portions of subset of audio recordings
- All data reported per 5 minute period

Recordings

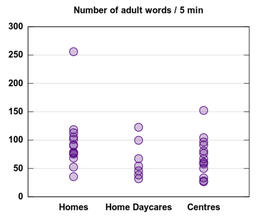
- 2-5 days of recording per participant

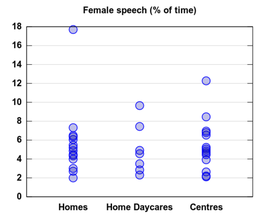
	Number of participants	Recording hours	Ages (months)	Participants transcribed	5-minute blocks transcribed
Homes	14 (9M,5F)	519	Mean: 20.5 Range: 13-30	10	57
Home Daycares	7 (3M,5F)	246	Mean: 24.1 Range: 14-32	3	15
Childcare Centres	14 (6M,8F)	392	Mean: 22.1 Range: 14-30	8	54

Results

1. Does the quantity of adult speech differ across childcare settings?

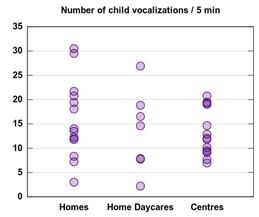
NO — no differences in number of adult words or female adult speech

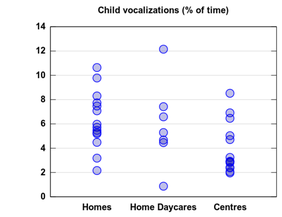


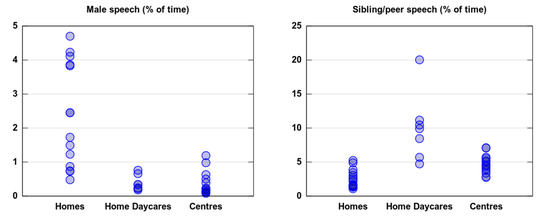


2. Does child vocalization differ across childcare settings?

MAYBE — no differences in *number* of child vocalizations but homes had more vocalization *time* than centres ($p \lesssim .01$)





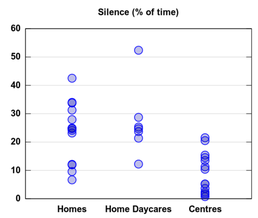


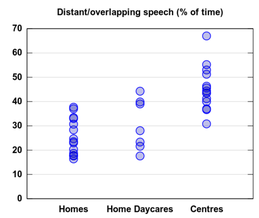
3. Does type of speech input differ across childcare settings?

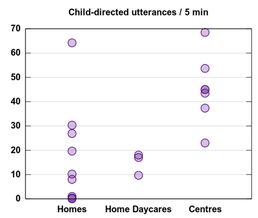
YES —
- More male speech in homes than daycares (p's < .005)
- More sibling/peer speech in home daycares than either homes ($p < .001$) or centres ($p < .005$); more in centres than homes ($p < .001$)

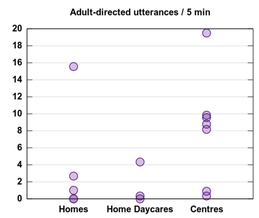
4. Does speech clarity differ across childcare settings?

YES —
- More silence in homes & home daycares than in centres (p's < .001)
- More distant/overlapping speech in centres than homes ($p < .001$) or home daycares ($p < .005$)
- Similar rates of disfluency (preliminary transcription data)
- Possible differences in child-directed versus adult-directed speech across settings (preliminary transcription data)









Conclusions

- Daycares and homes appear very similar in measures of raw quantity of input
- Qualitative differences emerge in *kind* and *quality* of linguistic input
- Preliminary transcription analyses complement and consistent with LENA findings
- Home daycares are not just halfway between daycare and home

References
[1] http://www.statcan.gc.ca/pub/89-599-m/89-599-m2006003-eng.pdf [retrieved February 28th, 2010].
[2] http://www.census.gov/population/www/socdemo/child/ppl-2005.html [retrieved February 23rd, 2010].
[3] NICHD Early Child Care Research Network. (2000). The relation of child care to cognitive and language development. *Child Development, 71*, 960-980.
[4] Huttenlocher, J., Vasilyeva, M., Cymerman, E., & Levine, S. C. (2002). Language input and child syntax. *Cognitive Psychology, 45*, 337-374..
[5] http://www.lenafoundation.org/Research/TechnicalReports.aspx [LTR-05-2:Reliability of the LENA™ Language Environment Analysis System in Young Children's Natural Home Environment]
[6] Boersma, Paul & Weenink, David (2009). Praat: doing phonetics by computer (Version 5.1.07) [Computer program].

Data Availability
For reasons of confidentiality, these recordings will not be publicly available. However, we would welcome requests for analyses to be performed on-site.