

Joint Attention & Vocabulary Development: An observational study of Mozambican Infants

J. Douglas Mastin and Paul Vogt

j.d.mastin@uvt.nl p.a.vogt@uvt.nl



Netherlands Organisation for Scientific Research



Introduction

When children learn new word-meaning mappings, they are thought to benefit from levels of engagement involving joint attention with a communication partner. Various studies have shown that the emergence, development, and usage distribution of types of joint attention are similar across participants (Bakeman & Adamson, 1984; Tomasello & Todd, 1983) and even correlate to vocabulary size and development (Carpenter et al, 1998; Mundy & Gomes, 1998; Childers et al, 2007; Gaffan et al, 2009). However, most of these studies only measure joint attention abilities, and not real-world distribution and frequency usage.

Therefore, in the CASA MILA project, we investigate both the positive and negative correlations between the frequency distributions of all possible engagement levels and infants' vocabulary development. Here we look at interactions with all communication partners, not solely caregivers, via unobtrusive observation in the home environment.

The aim of the project is to investigate these correlations cross-culturally, comparing the development of infants from two cultural groups in Mozambique (urban and rural) and one in the Netherlands (commencing in late 2011).

We investigate the following three research questions:

1. What are the frequency distributions of all engagement levels (non-joint and joint attention) the different cultures?
2. How do these frequency distributions correlate with vocabulary development?
3. Are there any cultural differences in either distributions or correlations?



Methods

Participants: Per cultural group (urban and rural) 14 families with infants of around 13-mo at commencement

Procedure: Longitudinal study with data-collection points at 13-, 17- and 25-mo. During each time period the infants were videotaped for 45-90mins, after an accommodation session the week prior. Participants' families were asked to continue their daily routine as they had been prior to our arrival. Afterwards, the infants' vocabulary size was assessed using an adaptation of the Mac Arthur-Bates CDI (short version).

Coding: From the recordings, 30mins of naturalistic data were coded for 8 different interaction types, composing three classes of engagement:

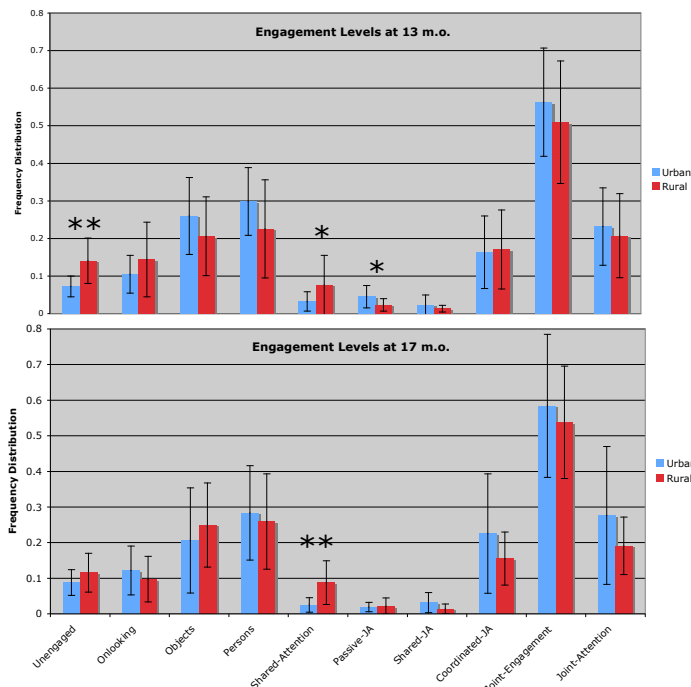
NON-JOINT: Unengaged; Onlooking; Object manipulation

DYADIC JOINT: Person interaction; Shared Attention*

TRIADIC JOINT: Passive, Shared*, and Coordinated Joint Attention

Results

The following graphs show the frequency distributions of all engagement levels in the rural and urban communities at 13- and 17-mo. (* $p < 0.05$; ** $p < 0.01$)



The following tables show the Spearman RHO correlations between the frequency distributions of engagement levels observed at 13-mo with vocabulary size at 17-mo, and then also vocabulary size at 25-mo. (* $p < 0.05$; ** $p < 0.01$)

	13-mo to Vocab at 17-mo		13-mo to Vocab at 25-mo	
	EXPRESSIVE	RECEPTIVE	EXPRESSIVE	RECEPTIVE
URBAN				
Unengaged	-0.312	0.011	-0.372	-0.152
Onlooking	-0.327	-0.220	-0.577 *	-0.508
Objects	-0.759 **	-0.474	-0.489	-0.137
Persons	0.803 *	0.705 **	0.595 *	0.428
Shared-Att'n	0.286	0.227	-0.097	-0.475
Passive-JA	-0.158	-0.396	-0.028	-0.119
Shared-JA	-0.305	-0.094	-0.114	0.279
Coordinated-JA	0.182	-0.194	0.643 *	0.360
SUM Joint-Eng	0.706 **	0.401	0.672 *	0.324
SUM Joint-Att'n	0.017	-0.273	0.449	0.329
RURAL				
Unengaged	0.145	-0.002	-0.279	0.013
Onlooking	0.044	-0.213	-0.129	0.187
Objects	0.118	0.226	-0.118	-0.020
Persons	0.099	0.208	0.728 **	0.510
Shared-Att'n	-0.310	0.233	0.173	-0.029
Passive-JA	-0.475	-0.361	-0.275	-0.248
Shared-JA	0.418	0.113	0.312	0.331
Coordinated-JA	-0.546 *	-0.277	-0.503	-0.691 **
SUM Joint-Eng	-0.211	-0.026	0.110	-0.165
SUM Joint-Att'n	-0.610 *	-0.281	-0.519	-0.675 *

Conclusions

The frequency distributions of engagement levels in both cultures are highly similar over development, with some significant differences between sites. The correlations, however, do not match previous findings.

We find that *Person Interactions*, which are not considered Joint Attention, have strong positive correlations to vocabulary size throughout development in the urban site and only in later development in the rural site. In addition, Joint Attention only shows a positive correlation in the urban site later in development than expected.

Therefore, Joint Attention may not necessarily be the primary scaffold for learning word-meanings in all cultures. This is especially interesting based upon the negative correlations found in the rural site, but further analysis of these interactions' outcomes and goals is still ongoing.