

Does babbling shape speech sound discrimination? An ERP investigation

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Behavioral studies have shown improvements in the perception of speech sounds following the onset of their production (e.g. 1;2;3). Thus, babbling onset might produce a perceptual reorganization, linked to the setting of perception/production loops for speech perception. In an ongoing study, we test this hypothesis with an Event-Related Potentials (ERP) investigation comparing the electrophysiological signatures of speech sound discrimination before and after babbling onset. Ten-month-old infants participate to a multi-feature oddball paradigm recording ERPs with 11 active electrodes (F7, F3, Fz, F4, F8, C3, Cz, C4, P3, Pz, P4). In this task, standard syllables “pa” are presented 80% of the time. Deviant stimuli are presented 10% of the time and either fall into participants’ production patterns (‘deviant 1’: “ta”) or fall outside from participants’ production patterns (‘deviant 2’: “ka”). Analyses will assess possible differences in the ERPs elicited by deviant 1 vs deviant 2. The target sounds were selected based on a preliminary parental survey targeting speech sound production. Following this survey (participants n=15), the sound /p/ is produced by 75% of 10-month-old French-learners; /t/ by approximately 50% and /k/ by 6%. Capitalizing on this pattern, we aim to recruit two groups of participants (n=25 each): Group 1, including infants producing both /p/ and one out of two deviants; Group 2 (control group), including infants producing none of the target sounds or only one out of 3. For each participant, babbling is home-recorded using the LENA system and a 90-minutes sample is human-transcribed. Preliminary results from a cohort of 14 participants (Group 1=5, Group 2=9; MA=10m18d) did not reveal any difference in the processing of the two deviants, in any of the two groups. Participant recruitment and testing are ongoing, and full group sizes are aimed for the conference.