

No evidence of native sound discrimination in Norwegian 9-month-old infants using an eye-tracking habituation paradigm

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The study explored whether 9-month-old Norwegian infants exhibit perceptual narrowing, a phenomenon where infants discriminate native language sounds but struggle with non-native ones. This developmental shift, typically occurring between 6 and 12 months, has been documented in various languages but is lacking in Norwegian infants. We tested monolingual Norwegian infants on their ability to distinguish the Norwegian vowel contrast /y - i/ (n=57) and two consonant contrasts /d - d/ and /b - d/ (n=28). The experiment utilized a habituation-dishabituation paradigm, similar to Houston et al. (2007), where infants were habituated to a specific sound and measuring their looking time when presented with alternating novel and habituated sounds (novel condition) versus repeated habituated sounds (habituated condition). The experiment was fully gaze contingent and only infants that habituated within 24 trials and had at least 1200ms of looking time in at least one trial in each condition (novel or habituated) were included. Log-transformed looking times were entered in linear mixed-effects regressions, with the test condition as an independent variable, controlling for age, sex, and maternal education. Surprisingly, the results showed no significant differences in looking time between novel and habituated trials for both vowel and consonant contrasts (vowel: $z = 0.88$, $se = 0.07$, $p = 0.38$; consonants: $z = -0.75$, $se = 0.08$, $p = 0.45$). These findings suggest two possibilities: either 9-month-old Norwegian infants haven't fully developed stable discrimination of native speech sounds, or their response patterns to familiar versus novel stimuli differ, making traditional habituation paradigms insufficient to demonstrate their sound discrimination capabilities. We also plan to perform time-series analyses through pupillometry data.