Toddlers' Word Recognition: Comparing a Story-based Pupillometry Paradigm to a Looking-While-Listening Paradigm

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Typically developing toddlers often do not (yet) pronounce all words correctly, for example, pronouncing the Dutch word bloem 'flower' as *[bum]. What underlies these deviations remains unclear (Levelt et al., 2023). One factor may be children's lexical representations. Lexical representations have often been studied using the Looking-While-Listening paradigm (LWL: Swingley & Aslin, 2000). In the LWL paradigm, children see one target and one distractor image while their eye gaze is measured. They hear a sentence (i.e., Kijk! Het is een X! 'Look! It's a X!') in which the target is pronounced correctly (e.g., [blum]) or with deviation (e.g., *[bum]). A bigger proportion of looks to the target for correct compared to deviation trials would imply detailed representations. In this project, the LWL paradigm is adjusted to a story-based pupillometry paradigm (see Vissers et al., 2021). In this story-based paradigm, children see one target image while they hear stories with targets in correct or deviant pronunciations. During the stories their pupil sizes are measured, with larger pupil sizes reflecting surprise (Zhang & Emberson, 2020). Larger pupil sizes for deviation compared to correct trials then indicate detailed representations. Pupillometry is possibly more sensitive (Zhang & Emberson, 2020) and fine-grained (Sirois & Jackson, 2012) compared to eye tracking. In addition, using no distractors in the story-based paradigm eliminates effects of distractors (Zettersten et al., 2022). Lastly, the paradigm is less repetitive compared to the LWL paradigm, possibly affecting children's attention. Data will be presented comparing findings of the LWL paradigm and the story-based pupillometry paradigm. It is expected that the story-based paradigm shows a similar pattern of results compared to the LWL paradigm but allows for more fine-grained analyses. Overall, this study informs about the level of detail in children's lexical representations and contributes to our knowledge about paradigms to test word recognition.