

ESR 7. Adapting AVATAR to research audio-visual integration in children

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The present study describes the development and evaluation of changes made to the AVATAR system (Devesse et al., 2018, 2020, 2021) to investigate audio-visual integration on speech understanding in noise in children with and without hearing loss, with particular regard to the patterns of attention maintenance and switching. AVATAR (Audio-Visual True-to-life Assessment of Auditory Rehabilitation) is a paradigm developed to assess audio-visual integration in an ecologically valid setting. It uses computer-generated 3D environments and human models who articulate their mouths realistically according to the auditory stimuli being played.

To address our research question, we first adapted the 3D scene and auditory stimuli to allow for competing speakers (one male and one female). In addition, speech reception thresholds in noise will be determined for a subset of LIST sentences (van Wieringen & Wouters, 2008) considered suitable for children to have reference values for 8-12 years of age. Also, we integrated Pupil Core (Pupil Labs, GmbH, Germany) eye-tracking technology to AVATAR and will evaluate its precision and feasibility of using both children and adults. The eye-tracking data collected from children with normal hearing will also be correlated to scores on a standardised test of attention to evaluate the appropriateness of using eye-tracking as a proxy for attention in complex, realistic listening environments.

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