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METHODOLOGICAL AND ACCESSIBILITY CHALLENGES IN EYE-TRACKING RESEARCH WITH DEAF AND HARD OF HEARING

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Eye tracking has become an important method for investigating perceptual, cognitive, and linguistic processing, offering objective insights into visual attention, reading behaviour, audiovisual processing, and user interaction. In research involving deaf and hard of hearing (DHH) participants, eye tracking is particularly valuable because vision often plays a central role in communication, language access, and information processing. At the same time, conducting eye-tracking studies with DHH populations raises specific methodological and accessibility challenges that remain insufficiently addressed in current literature.

Media accessibility for DHH is one of the fundamental objectives of the European Union, which is explicitly addressed in the European Accessibility Act (Directive (EU) 2019/882, 2019). Promoting the inclusion of people with disabilities, the Act emphasises the significance of research aimed at these target groups. Research involving DHH participants is influenced by several factors, including the considerable heterogeneity of the DHH community and communication barriers. These challenges may contribute to the underrepresentation of DHH individuals in research studies (Motiejūnienė, 2025). Therefore, guidelines and recommendations for researchers seeking to investigate these populations might be useful in standardizing eye-tracking data collection protocols and fostering collaborative environments.

Our study examines methodological practices in eye-tracking research involving DHH participants and offers guidelines for future work. We discuss eye-tracking research design, drawing on recent literature, ongoing international initiatives and our own experience conducting eye-tracking studies with DHH participants. We draw particularly on the MultiplEYE text corpus and comprehension methodology (Jakobi *et al.*, 2025; Kasperė *et al.*, 2026). The proposed methodological guidelines cover participant profiling, inclusive recruitment strategies, informed consent procedures, communication during testing, adaptation of instructions into plain language, stimulus design, subtitles, sign language video integration, multimodal layouts, etc.

This work is part of the ongoing EyeSign project (LMTLT, no. S-MIP-24-32) which examines the accessibility and acceptability of machine and AI-supported translation for DHH in Lithuania.

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