

Collecting digital research data using smart devices from deaf and hard of hearing children training speechreading

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Speechreading, or lipreading, aids speech recognition in everyday social interaction, especially in deaf and hard of hearing (DHH) people. Speechreading training in childhood could increase the benefits for speech recognition, and the systematicity of training could be improved with digital solutions. We developed a mobile speechreading training application Optic Track (openly available after the research period) and aimed to find out how the amount and quality of using the app is related to the change of the speechreading skills of Finnish DHH children aged 8–11 years. Children participating in the study can use either Android or Apple devices (cellular phones, tablet computers) for training for eight weeks. Users of the app look at videos of people silently speaking single words, sentences and short narratives and accomplish discrimination and matching tasks and compile three-word-sentences. The app provides different categories and gamified practice modes to promote active usage. During the training period, the research version of the app collects data such as the time used for practicing, and the success in accomplishing different tasks.

After the training period, the data collected by the Optic Track are transferred to the researcher's device without saving any sensitive data. Data transfer is done either via USB cable or wirelessly. In the wireless option, the data are transferred using QR-code created based on a FileSender link, a secure filesharing service. The binary file is then converted into a .CSV file to have the data in a more easily readable text format and to allow further processing with statistical programs.

The preliminary results show that the collected data can be used in exploring the relationships between, for example, the training time with the Optic Track app, the improvement across time in the tasks the app contains and the possible changes in speechreading skills tested with a speechreading test.