

## **Effect of an Integrated Prosody-Based Intervention on Reading Comprehension in Chinese Deaf and Hard-of-Hearing Children: A Randomized Controlled Trial**

Deaf and hard-of-hearing (DHH) children face great challenges in reading comprehension. Although the Education Bureau has proposed "Enhanced Support Services" to facilitate their reading development, specific details remain undefined. Prosody—the rhythmic and melodic aspects of language, including tone, rhythm, and intonation—is particularly crucial in Chinese. It comprises two interconnected components: speech prosody (i.e., the prosodic features of spoken language) and reading prosody (i.e., the expressiveness of prosodic features during oral reading). Research with hearing children highlights the predictive effects of speech and reading prosody in reading development and indicates the effectiveness of integrating both types of prosody training to enhance reading comprehension. Although DHH children exhibit atypical prosody, our studies with Chinese DHH children demonstrate that prosody is vital for Chinese reading comprehension (Deng & Tong, 2021a, 2021b). Additionally, our recent systematic review (Deng et al., under review) synthesizes evidence on DHH reading interventions, suggesting that prosody enhances the effects of reading fluency training, which subsequently affects reading comprehension; however, this evidence lacks randomized controlled trials, and retention effects remain unknown. Therefore, this proposal aims to: (1) determine the effectiveness of an integrated prosody-based intervention (i.e., IPBI) in enhancing reading comprehension; and (2) examine the short-term and long-term retention effects of the intervention. Sixty DHH children in Grades 1-3 with functional hearing and 60 hearing counterparts will be randomly assigned to treatment and control groups, respectively. They will be assessed on speech and reading prosody, reading skills, and linguistic and cognitive controls at baseline, post-assessment, and two follow-up assessments (three months and one year). The effectiveness of a three-month IPBI will be determined by comparing reading outcomes between the treatment and control (self-silent reading) groups before and after the intervention (Objective 1). The short-term and long-term retention effects will be identified by the continuous reading improvement of the treatment groups after the intervention, measured at three months and one year post-intervention (Objective 2). Theoretically, this research will clarify the causal relationship between prosody and reading comprehension, extending the revised Reading Systems Framework (Wade-Woolley et al., 2021) to the Chinese DHH population. Practically, the IPBI provides a new approach to support DHH children's reading development during the early school years. It will provide empirical evidence for data-based decision making and drive curriculum changes. Ultimately, improved reading performance will enable DHH children to thrive in inclusive education systems, enhancing quality of life and supporting lifelong development.