Development of a learning task for a process-oriented diagnostics of developmental speech sound disorders: a pilot study

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Differential diagnosis and treatment planning of speech sound disorders (SSD) is one of the major bottlenecks in the field of pediatric speech-language pathology. The current study comprised the development and evaluation of a learning task designed to provide insight in different (sub-)processes involved in the acquisition of sensori-motor representations of novel speech sound units.
Six normally developing children (aged 4.1-7.8 yrs) and five children with SSD (aged 4.3-7.5 yrs) participated in the pilot study. The learning paradigm comprised a repetition task of three speech sound units that are not present in the children's mother tongue ([g], [ʃ], and the consonant cluster /ml/, followed by [a]) in four conditions of repetition and variation.
Statistical analyses revealed significant main effects of learning as well as significant differences between groups, but no group by learning interactions. Detailed analysis of the individual data show underlying profiles to vary widely per child with SSD. Furthermore, results highlighted the role of prosody in SSD, suggesting a trade-off between accuracy at the segmental and supra-segmental levels. These preliminary results are promising for the profiling of SSD and suggest that a detailed assessment of the acquisition of novel sensori-motor representations may provide direct starting points for therapy.