Is that me? Self-voice identification in children with deviant speech

In children with deviant speech, a discrepancy between internal and external discrimination is often observed. For example, a child who produces a target word like cat as [tat] might well be able to recognize the same error when someone else produces it (external discrimination), but still fail to perceive the error in his/her own speech (internal discrimination). One focus in speech and language therapy is therefore to strengthen the child’s self-monitoring skills, e.g. through the use of recordings (Hoffman & Norris, 2005). However, it is still not known if children with deviant speech indeed recognize their recorded voice as their own. And if they don’t, we could not expect any advantage from using the child’s own recordings in therapy, as it would merely be another form of external discrimination.

The present study aims to explore 1) if children with phonological impairment (PI) recognize their recorded voice as their own on the same level as children with typical speech, and 2) whether the time interval between making a recording and identifying the recording as one’s own influences the children’s performance, and 3) whether the performance of children with PI is dependent on the phonological accuracy of their production.

The ability to recognize the recorded voice as one’s own was explored in three groups of children: one group of children with PI (N=18) and two groups of children with typical speech and language development; 4-5 year-olds (N=25) and 7-8 year-olds (N=23). The children with PI all exhibited patterns of velar fronting in their speech production. A recording script of 24 words was used for all children, with half of the words beginning with /tV/. Thus, the children with PI were expected to produce half of the words in error. The task for the children was to identify which of four randomly presented child recordings of a word was their own recording. Self-voice identification was tested on two occasions for each child, the first immediately following the child’s production of the recording, and the second 1-2 weeks later.

High average performance rates in all three groups suggest that children indeed recognize their recorded voice as their own, with no significant difference between the groups. A significant drop in performance from immediate playback to delayed playback was found. This drop was most pronounced in the older group of children with typical speech. The children with PI did not perform differently on stimuli produced in error and stimuli produced correctly, suggesting that they do not use their speech deviance as a cue to identifying their own voice. A clinical implication of these findings is that one can indeed expect an advantage of using recordings of the child’s own speech in therapeutic settings, as this would be closer to internal discrimination than external discrimination. We argue that the indications that children with PI do not use their speech deviance as a cue to identifying their own recording from those of other children reflect the difficulties they have to judge their own speech production accurately, and indicate this as an important focus of intervention.


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