

Title: The influence of voice quality on sentence processing and recall performance in school-age children with normal hearing

Published (print): January, 2018

Published online: April 11, 2017

Category: Journal paper

Journal: Speech, Language and Hearing

Volume(Issue): 21(1)

Pages: 1-9

DOI: [dx.doi.org/10.1080/2050571X.2017.1309787](https://doi.org/10.1080/2050571X.2017.1309787)

Authors: Jonas Brännström (1), Tobias Kastberg (1), Heike von Lochow (1), Magnus Haake (2), Birgitta Sahlén (1) & Viveka Lyberg-Åhlander (1)

(1) Dept. of Logopedics, Phoniatics and Audiology, Clinical Sciences in Lund, Lund University, Lund, Sweden.

(2) LUCS (Lund University Cognitive Science), Lund University, Lund, Sweden.

- - -

Abstract

Previous findings suggest that working memory capacity (WMC) is influenced by a dysphonic voice quality. The present study examines the influence of voice quality on sentence processing and word recall in a working memory task. Fifty-seven children (8:1–9:1 years old) with normal hearing participated. Working memory capacity (WMC) was assessed using a competing language processing task (CLPT) which consists of a sentence processing segment (judgements of semantic acceptability in sentences) and a final word recall segment. All children completed two versions of the CLPT; once listening to a typical voice and once listening to a vocally loading induced dysphonic voice. The two voices were recorded from the same female speaker. In addition, the children's executive functioning was assessed using Elithorn's mazes. The dysphonic voice quality significantly decreases scores on the sentence processing segment but not on the recall segment. Children with better executive functioning (i.e., response inhibition, organizing, processing, and planning) were less disturbed by the dysphonic voice in the recall segment. Children's judgements of semantic acceptability in sentences in a working memory task are affected by a dysphonic voice quality, but not the recall segment (the measure of WMC). However, children with lower executive functioning may be more disturbed by the dysphonic voice. These findings suggest that listening to a dysphonic voice seems to require more cognitive resources than listening to a typical voice, but only when the task is sufficiently easy to allow for allocation of cognitive resources to process the degraded signal content.

Keywords

Children; working memory; voice quality; dysphonic voice