

# Deaf children's vocabulary less than hearing children's as words get more difficult, impacts reading comprehension

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In general, a deaf or hearing-impaired child knows fewer words than a child who can hear well. Researcher Karien Coppens of the Netherlands Organisation for Scientific Research (NWO) discovered that the weakness in vocabulary is the greatest when it comes to difficult words for which an in-depth understanding of their meaning is required. A limited vocabulary is the most important cause of problems in reading comprehension. An electronic vocabulary test, which will be used in primary schools for children with special needs, has been developed on the basis of the research results. Coppens gained her doctorate from Radboud University Nijmegen on 5 October 2012.

Communication and information scientist, Karien Coppens, monitored the development of [vocabulary](#) in 140 deaf and severely hearing impaired pupils for a period of one to four years. The [children](#) were between 8 and 13 years old at the start of her research. Every time they were assessed, the children were presented with two assignments that measured both the extent to which they were able to recognize [words](#) and their deeper vocabulary. Coppens compared the results with those of 819 primary school children without [hearing impairment](#). The researcher established that the size, depth and growth of vocabulary in children with hearing impairment are less than that of hearing children. The weakness is the greatest when it comes to difficult words.

To distinguish between difficult and easy words, Coppens conducted a

[statistical analysis](#) of the most frequently occurring words in the Dutch [aptitude test](#) (Citotoets) administered at the end of primary school. She divided these words into seven groups of increasing difficulty. The groups of words differed from each other by the number of letters, the age at which the child learns the word, how easily the word can be conceptualized, and frequency of use. Children with hearing impairment performed least well compared to hearing children when faced with words from the group of difficult words. As a possible explanation Coppens suggested, 'In general, deaf children develop a smaller basic vocabulary because they take in fewer words indirectly from their surroundings compared to hearing children. You need easy words to explain the meaning of more difficult words and therefore to understand them. A smaller basic vocabulary therefore hinders deaf children in learning more difficult words.'

## Individual differences

Hearing impaired children, incidentally, exhibit wide individual differences in their reading vocabulary. Coppens lists the differences: 'Children who wear a hearing aid or have a cochlear implant, children who are highly intelligent, who communicate with their parents through speech, who go to ordinary schools or in whom hearing impairment has occurred later in life have an advantage here.' It is striking that the differences in performance between hearing impaired children remain the same over time. Having a relatively large vocabulary now also means they will have a relatively large vocabulary in later life. The same is true for children with a relatively small vocabulary.

## Vocabulary test

Due to an Added Value grant from NWO, Coppens' scientific insights can be put into practice. 'We have developed a 10-minute vocabulary test

that teachers can administer to children electronically,' explains Coppens. It analyses [pupils](#)' development and predicts expected growth. 'This test, for instance, helps to clarify whether a hearing impaired pupil has a vocabulary of a sufficient level to enable him or her to transfer to an ordinary school,' says Coppens. The test, called Woord voor Woord (Word for Word) has nine levels. Every time the test is taken, the degree of difficulty changes automatically on the basis of the results the child achieved previously. Expectations are that schools for children with hearing impairment will be able to make use of Woord voor Woord from next year onwards.

Provided by Netherlands Organisation for Scientific Research (NWO)

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