

## **SOUND CATERPILLAR – AN INTERACTIVE, MUSICAL AUDITORY TRAINING GAME FOR HEARING IMPAIRED CHILDREN**

**Leen De Bruyn**<sup>1</sup>, Birgit Philips<sup>2</sup>, Dirk Moelants<sup>1</sup>, Pieter Coussement<sup>1</sup>, Marc Leman<sup>1</sup>, Ingeborg Dhooge<sup>2</sup>

1. Ghent University, IPEM – Department of Musicology, Ghent, Belgium
2. Ghent University, Department of Oto-rhino-laryngology, Ghent, Belgium

**Aim:** Investigation of sound discrimination and identification abilities in hearing impaired children aged six to twelve years.

**Material and methods:** We developed a social, interactive musical sound discrimination game as a scientific tool. Based on this, timbre and melody discrimination were assessed in children with cochlear implant(s) (CI,n=24) and hearing aid(s) (HA,n=24) and compared to normal hearing children (NH,n=136).

**Results:** We find no significant differences between NH, HA and CI for timbre discrimination and see a clear development of timbre discrimination abilities with age regardless of the hearing impairment or aid. For melody discrimination we find a strong development in older NH-children, whereas this improvement is not established in HA and CI children. HA and CI children clearly focused much more on aspects of sound quality as a discrimination strategy, whereas NH-children relied on sound identification or association.

**Conclusions:** Our results are very promising for further development of this sound game for assessment and training of auditory skills in the hearing impaired.