

Cochlea Implantat & Redefluss

A syntactically based linguistic training of relative clauses: Studies on Italian-speaking children with cochlear implants and a proposal for the training of German-speaking children with hearing loss

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Topic and aim

Hearing loss leads to a delayed acquisition of an oral language. Indeed, even though deaf children are fitted with hearing aids (HA) or cochlear implants (CI), the linguistic input accessible for this population is still quantitatively and qualitatively reduced. The delay involves several levels of language such as phonology, morphology, syntax, and pragmatics. Considering syntax, several studies carried out in several languages (English, Hebrew, Arabic, Italian, German) showed that children with hearing loss and fitted with HA or CI may have a deficit with structures derived by syntactic movement, such as relative clauses, wh-questions, and passive sentences. Moreover, within the movement-derived sentence structures, children show a selective deficit in the processing of the structures where the object precedes the subject determining the so-called subject-object asymmetry, namely sentences derived by the movement of the subject are easier to process than the sentences derived by the movement of the object. The same asymmetry has been found in other populations with typical and atypical language development (children with typical language development, L2 learners, children with developmental language disorder-DLD, children with developmental dyslexia), and in people with an acquired language impairment (patients with agrammatic aphasia). Several studies have demonstrated that it is possible to improve people’s performances in the processing of complex sentences resorting to the explicit teaching of syntactic rules: verb argument structure, Theta criterion, and syntactic movement. This talk aims to present evidence from three case studies on the linguistic training of relative clauses in Italian-speaking children with CI and to suggest a protocol for the treatment of syntactically complex structures in German-speaking children with hearing loss.

Methods

The participants are three Italian speaking-children with CI aged 8;5-10;5 suffering from bilateral profound sensorineural hearing loss. They were diagnosed and fitted with HA between the age of 0;5 and 2;0 and, because they only gained little benefit from the HA, they received the CI between the age of 2;7 and 8;4. Their hearing experience with a CI is comprised in a period between 2;1 and 7;0 years. Every child was tested on production and comprehension of RCs using two Italian tests by Volpato (2010). Two participants were assessed on their narrative skills resorting to the Frog Story. The performance of each participant was compared with three control groups

composed of Italian-speaking children with comparable chronological age. The linguistic training is based on previous studies by Thompson et al. (1995, 2005) on the rehabilitation of patients with agrammatic aphasia, and by a seminal study by Levy and Friedmann (2009) on the linguistic training of a Hebrew-speaking boy with syntactic DLD. The aims of the linguistic training were to: (i) analyse the efficacy of the explicit teaching of syntactic rules and the duration over time of its effects; (ii) analyse generalization effects to untrained sentences derived from the same type of syntactic movement (subject relative clauses, wh-questions), and on narrative skills. The linguistic intervention consists of three stages. The first stage is focused on the explanation of verb argument structure and Theta criterion. The second stage of the treatment aimed at teaching wh-movement through a card game. The third stage comprised the review of the topics taught during the previous sessions.

Results

Results at the end of treatment showed an improvement in both production and comprehension of relative clauses, and also in participants' narrative skills. Moreover, results were maintained several months after the end of treatment. The training based on ORs enabled generalization effects on the untrained structures, so as an improvement of MLU was observed. Therefore, the three case-studies confirm the reliability of a syntactically based linguistic training focused on the explicit teaching of syntactic theory also for children with CI. Considering the results of the studies carried out in Italian and considering the works by Stadie et al. (2007), I developed a protocol of the linguistic training also for German-speaking children with hearing loss that must be validated.

References

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