Could English Cued Speech help deaf children learn new words?

Rachel Rees explains the potential benefits of Cued Speech and reports on a case study with Judith Bladel looking at a nine-year-old deaf boy using a cochlear implant.

What is Cued Speech and how could it help deaf children?

Cued Speech (CS), originally developed by Orin Cornett in 1967, is a system of eight hand shapes and four hand placements that are designed to be used alongside connected speech, to disambiguate any lipreading confusions. Consonants with similar lip patterns (e.g. /p/ and /b/) have different hand shapes and vowels with similar lip patterns (e.g. the vowels in the words “pan” and “pen”) have different hand positions. After a short period of training, parents and other adults can become proficient at cueing as they speak. Deaf children, whose parents cue to them from an early age, are potentially able to access the full phonology of their spoken language. In theory this should help them to learn spoken language. For many deaf children, acquiring a spoken language is a struggle as whole groups of words with similar lip patterns are perceived in the same way. If these words are cued in running speech they will be perceived differently and then learnt more easily. If words are learnt and stored more accurately the task of learning to read is facilitated. Deaf children do not have to cue themselves or “learn” cueing, as CS aims to facilitate their speech perception in an implicit way.

Why do deaf children need help with lipreading if they have cochlear implants?

Although cochlear implants can greatly enhance access to auditory information, children using them vary in how much they can learn to follow speech without lipreading. Even children implanted before 18 months can take several years to reach a level where they can follow a simple conversation with a familiar person in a quiet environment without lipreading (De Raeve, 2010). There are some medical conditions (such as hypoplasia of the auditory nerve) that show less benefit from implantation in terms of auditory development (Valero et al., 2012) and so children with deafness due to these conditions would be relying more on lipreading.

Does Cued Speech help deaf children?

There are many studies demonstrating that the early introduction of CS at home has a significant effect on deaf children’s ability to identify spoken words and develop phonological awareness and literacy. However, the majority of these studies report on French CS and some researchers warn us to be cautious before generalising these findings to English CS. There is a dearth of studies conducted with English CS but they do have positive findings. One study conducted by Crain and LaSasso (2010) demonstrated that a group of deaf children with an English CS background had superior phonological awareness skills to a matched group of deaf children with an oral background.
What have we learnt from a case study with a nine-year-old deaf boy using a cochlear implant?

Our study investigated the possible effects of English CS on the speech perception, phonological awareness and literacy skills of a nine-year-old boy, Harry, who was diagnosed with congenital bilateral profound deafness due to auditory nerve hypoplasia at 10 months. His parents started to use CS when Harry was 12 months old and he was fitted with a right sided cochlear implant at 27 months. In assessing the effectiveness of implantation, regular reports from the implant centre noted the limited effects on listening. A report written after this study was completed noted that Harry still found it difficult to access speech through listening alone. Despite this, his mother reported that Harry had exceeded age-appropriate literacy levels since Year 3. When we began studying Harry he was attending a mainstream school in the UK.

The use of standardised tests revealed that he had phonological awareness and literacy skills that were in the higher end of the typical range for hearing children of his age. It could be argued that this performance was related to Harry’s non-verbal intelligence which was also in the higher end of the typical range. However, non-verbal intelligence and literacy abilities do not seem to be strongly associated in deaf children with age-appropriate nonverbal intelligence.

We compared Harry’s speech perception of simple spoken English sentences in three conditions: listening only (LO), listening + lipreading (LL) and listening + lipreading + CS (LLCS). Harry had some difficulties with the LO condition, had minimal difficulties with the LL condition and no difficulty with the LLCS condition. Although there was a significant difference between the LO and other conditions, the difference between the two lipreading conditions was not significant. This tied in with what the mother had told us about Harry’s current lipreading skills. She said she had reduced the amount she cued when Harry was between five and six years old because he needed it less for familiar language. She proposed that he now needed CS more for unfamiliar words that he was learning.

Therefore we developed a test to assess Harry’s ability to perceive nonwords, which are similar to new words that children are learning as they will be unfamiliar and yet similar to words they know in terms of their structure. As Harry had some minor speech difficulties we decided against using a nonword repetition test. As he had good spelling skills, we chose instead to develop a nonword dictation test where Harry was asked to write down spoken words with predictable spellings such as “brosp” and “trint”. We used two versions of the test with matched items. Both versions were presented in an LL condition and the other in an LLCS condition. There was a significant difference between his performance in the two conditions where he scored 100% in an LLCS condition and 50% in the LL only condition. This suggests CS was helping Harry to perceive and store novel words and that this effect could have contributed to his development of vocabulary, phonological awareness and literacy skills that were generally in advance of those expected for his age.
What are the implications?

This study adds to the evidence that English CS could have a positive effect on deaf children’s spoken language acquisition if they are exposed to CS from an early age at home. The current evidence needs to be available to parents who are considering communication options for their deaf child, ideally before the child is 18 months. Parents should also know that CS can also be an effective way for deaf children to access the spoken English half of a bilingual approach that involves a natural sign language (Kyllo, 2010). Training in CS is now easy to access for parents in the UK and includes the use of Skype classes. For further information – see www.cuedspeech.co.uk. We, as researchers, need to be collaborating with teachers and parents of deaf children to add to this evidence base for English CS by conducting further studies.

Rachel Rees is a lecturer at University College London (UCL) and Judi Bladel was a Masters student at UCL. They would both like to thank Harry and his family for their co-operation and support.

A full description of the case study reported in this article can be found in a forthcoming edition of Deafness Education International: Rees, R, Bladel, B (in press) Effects of English Cued Speech on speech perception, phonological awareness and literacy: a case study of a nine-year-old deaf boy using a cochlear implant. Deafness Education International.

References


