



Talk4Meaning
Supporting children with
communication and learning needs

THE LEXION GLUE EAR PROJECT

Susie is 11 years old and has just started her final year in primary school. Her parents have been concerned for several years that Susie is not making sense of the reading process, and have worries about her spelling. School staff are not too worried, because their reading and spelling tests show that Susie is only 12 months behind her peers. What the school do not know is that Susie had recurrent otitis media as an infant and had grommets inserted when she was four years old. Susie's teachers are also unaware of Susie's phenomenal ability to memorise whole words and spellings, but that her underlying understanding of the reading and spelling process is very confused. Susie is one of a group of children I have been working with who had intermittent conductive hearing loss in their pre-school years, and now have significant problems with reading and spelling. Are these two facts linked, and what can be done to help what is, I suspect, a very large section of the primary school population with literacy difficulties?

Otitis media is one of the most common childhood ailments worldwide, with some reports suggesting that up to 70% of children are likely to experience at least one episode before they are three years old. Many children suffer from recurrent otitis media, leading to the chronic condition known as 'Glue Ear'. Surgery (typically myringotomy with insertion of 'grommets') can lead to spectacular improvements in hearing, as well as rapid development of speech and language. However some longitudinal studies looking at children with an early history of intermittent otitis media report difficulties in school. Recent research seems to confirm what many practitioners and parents have long suspected: that there is a direct link between intermittent conductive hearing loss in early life and later difficulties with reading and spelling.

I have been working with a new Swedish computer program called Lexion, which helps children in the UK put together the complex pieces of the reading and spelling jigsaw. Two Swedish Speech and Language Therapists, Martti Martens and Olof Gunnilstam originally developed the program 15 years ago. Olof initially designed the program for adults with aphasia. Martti, who at the time was working with children with language-related learning difficulties, could see the program's potential for helping children and young people with dyslexia. Lexion was adapted accordingly, and is now used in 80% of Swedish mainstream schools, with the percentages for schools in Norway, Finland and Denmark increasing.

Annika Hallsvik has been steering Lexion through an extensive standardisation process in the UK. She has met many practitioners, children and parents, and has had an overwhelmingly positive response. "Lexion has a number of features that makes it unique in the field of computer based learning", she explains. "One key area is that children can use the program at home. Teachers can choose exercises that they want the children to focus on, and download them onto a USB memory stick, or email them directly to the children for use on their PC at home."

As well as having a vast number of games and exercises, Lexion has other unique ingredients: you can make up your own exercises, and even download images from the Internet. This increases motivation and understanding, as you can tailor-make the program to suit a child's particular interests or needs. If a child has an interest in fishing, for example, the teacher can download images of fish and angling from Google, and incorporate these into specific exercises.

Annika is very clear about why UK children experience literacy difficulties. "English children need a longer period of education in phonological reasoning before letters and their sounds are introduced. There is a high risk of confusing letter sounds and letter names, which affects the acquisition of breaking words down and spelling, resulting in fragmented reading habits.

"Lexion helps the teacher decide what approach is needed. Lexion assesses the child and generates exercises that help to build the foundation for efficient readers. After a fun assessment, the teacher is immediately given a profile of the student's strengths and weaknesses. You will find exactly where the problem is: comprehension, reading, spelling or phonological awareness. The child is then given a series of exercises that go right to the heart of their reading and spelling problems. The child can start instantly on a process of developing the key skills they need for reading and spelling."

The problem is compounded for UK children because the links between the spoken and written word, the *orthography* in English, is highly complex. The more demanding the orthography, the more we need to develop children's ability to hear sounds and words, and know about them: whether a word is long or short, how many syllables it has, and how many sounds it is made up of. This is less of an issue in Italian or Spanish, where there is a more direct correspondence between how a word is said and how it is written.

Learning can be complicated by the teaching system in the UK. We tend to teach formal reading earlier than in other countries, so children are not ready to absorb what is being taught. Children can become confused when they learn letter names and sounds at the same time. Children will naturally develop visual forms of reading, and can recognise words as whole shapes: the *logographic* method. This is an important skill, but does not help when you meet an unfamiliar word and need to break it down, or *decode* it. If a child only relies on visual recognition or logographic methods, then they will have difficulties with spelling, as they have not developed the necessary sound/letter knowledge. As Annika Hallsvik puts it, "That's fine if you learn to recognise 'McDonald's', but how are you going to read 'Starbucks' if you've never seen it before?"

Many children in the UK, including those with a history of conductive hearing loss, rely on this logographic method of learning to read, and fail to fully develop an appreciation of how sounds make up words in English; i.e. they have poor *phonological awareness*. There is general agreement that difficulties with phonological awareness are at the heart of the problem, and improving phonological awareness is the heart of the solution.

Practitioners speak highly of Lexion, as a very useful tool for supporting children through all the difficulties described above, and particularly focussing on phonological processing. Like other computer-based learning programs, it is highly motivating for students, which is essential if children are to put in the necessary hours of practice. They are given regular feedback by the program, in terms of percentage achievement. There are large

elements of repetition within the exercises, but the program cunningly adds subtle changes as the child progresses, introducing the important element of challenge.

Lexion now contains profiles of work for every term from Reception to Year 9, resulting in exercises that follow the Primary National Strategy. Teachers can create exercises for individuals or groups by using a 'predefined profile', so the program can now be used to teach the whole class at an appropriate level, as well as aiming exercises towards children with specific learning needs.

I also find that the program has an impact on children's expressive language skills. This may be because many children with specific learning needs do not read widely and as a result do not have access to the rich language of literature. A language-based program such as Lexion, with its repetition of highly visual and auditory elements, is therefore likely to improve vocabulary.

Talk4Meaning plan, with the support of Deafax, to set up a research project involving children in primary school with a history of pre-school conductive hearing loss. We aim to investigate the extent to which using Lexion at home and at school will promote children's phonological awareness, and improve reading and spelling skills. Early results working with children at home are promising, with parents reporting a significant improvement in children's confidence as readers and spellers, and a raise in their self-esteem. These are vital if children are to put in the necessary practice needed to establish the link between speaking and spelling, and to deal with the myriad of exceptions and downright oddities that make up the English spelling system!

Deafax is pleased to have the opportunity to work with Talk4Meaning. Deafax endeavours to empower people with a conductive or perceptive hearing loss to lead fulfilling lives through the use of innovative communications technologies. Founded in 1985, it is a charitable company with a national remit and strong international links. It pioneers the use of ICT in its many education, training and research projects for deaf people of all ages, teachers, parents, employers, and health professionals and provides workshops in schools for the deaf throughout the UK. It also works with BATOD, BECTa (British Educational & Communications Technology Agency) and other organisations. Deafax has recently established an ICT Research and Development Unit and delivers long distance training programmes from its Virtual Learning Centre based at the Institute of Education, University of Reading.

I would be delighted to hear from any readers with experience of working with children similar to those described in this article, or who would like to take part in the research.

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