The Secrets of Words

A programme to help develop deaf children's literacy

Nuffield Foundation

ndcs

every deaf child

Developing deaf children's literacy

SUMMARY

Age range: This is a programme to help deaf children who are aged 7–11 years. It is most suitable for deaf children who are not performing at the expected level for their age.

Audience: This is a programme to help primary school teachers, supported as required by Teachers of the Deaf and teaching assistants, to develop the literacy skills of deaf children. Parents can play an important role by playing the games and reading the books with their children. This should be done in partnership with the class teacher, who will introduce the concepts first in school and indicate which games and books are appropriate at the time.

The programme: A 10-unit programme of lessons, exercises, games and specially designed books to improve deaf children's literacy skills by increasing their understanding of English morphology and syntax. Although designed as a 10-unit programme, it can be used more flexibly.

Benefits: Research by Oxford University found that deaf pupils using the programme made greater progress in spelling, reading comprehension and writing than deaf pupils in a control group that did not use the programme.

Introduction

Developing literacy skills for deaf children remains a challenge, even with the latest hearing technologies such as digital aids, cochlear implants and bone anchored hearing systems.

Most deaf children in the UK will have experienced a phonological approach to the teaching of reading. However, English also uses units of meaning called morphemes to form words. Research by Oxford University has demonstrated that deaf children need to develop a better awareness of morphology if they are to improve their literacy skills.

The research briefing which follows gives an insight into the background to the research, its aims, how the research was carried out and some of the results which were reported.

The programme is in 10 units. Although the 10 units were originally designed to be taught over 10 weeks, some teachers involved in the research project found that they had to move at a slower pace and were able to adapt the materials to do this. The 10 units build on each other and should be used in order.

There are learning materials for each of the programme's 10 units for children to follow with their teachers or teaching assistant. It is flexible enough to be adapted to suit the needs of individual pupils. **The 10 units are:**

Unit 1   Sentence structure and pronouns
('Who does what?')

Unit 2.   Third person singular and adjectives
('Get the verb right' and 'Describing the "what"')

Unit 3.   Adverbs and other verbs
('Describing "does" with "how" and "to be"')

Unit 4.   Plural and compound words
('One or more?' and 'Compound words')

Unit 5.   Plural and past and present tense
('One or more?' and 'Past and present')

Unit 6.   Morphology ('Person words'), present & past tense, plural, and word order

Unit 7.   Past, present and future, morphology
('Person words' and 'Number meanings')

Unit 8.   Adverbs ('Choose the adverb' and 'Does it fit in the sentence?'), past, present and future, abstract nouns, morphology ('Reverse meaning')

Unit 9.   Review of concepts and morphemes

Unit 10.   Review of concepts and morphemes

For each of the 10 units there are:

a) a description of the learning objectives for the pupil

b) teacher-led activities (or lessons) to be delivered to children in groups or individually as a PowerPoint presentation prior to them starting on the worksheets, games and books

c) worksheets, books and games to be printed out for use by the pupil in school but also at home.

They have been piloted with groups of teachers and their children and are the result of a research project which was closely related to classroom practice.

If schools or parents can provide the children with access to the internet, they can play further games by accessing this site: **www.education.ox.ac.uk/ndcs/resources.html** and clicking on the tab for the literacy corner.

The research was carried out using the Oxford Analytical Writing Assessment which can be found at: **www.education.ox.ac.uk/ndcs/resources.html.** Click on 'resources for teaching literacy', then click on 'Oxford literacy assessments' and then on 'assessing deaf children writing – background paper'. Teachers will find on the website details of the assessments that they can use to evaluate the impact of the learning resources on pupil progress.

Research

Developed by Terezinha Nunes, Deborah Evans, Diana Burman, and Rosanna Barros at the Dept of Education, University of Oxford.

In order to learn to read, children must learn to think about the English language. Children's awareness of the sounds of words helps them to understand the alphabetic principle. There are many sources of information for teachers about how to help deaf children become aware of the sounds of English. The research reported here is about how to help deaf children think in a different way about the English language and in so doing to become aware of morphemes.

English uses units of meaning called morphemes to form words. The word 'magician' consists of two morphemes, the stem, 'magic', and a suffix, 'ian'. Together these units create the meaning of the word, a person who does magic. Children who grasp how morphemes work can anticipate the meaning of words that they have not encountered before, e.g. if they had never come across the word 'mathematician' they could have a good stab at what it means on the basis of its morphemes.

Morphemes are closely connected to syntax and, consequently, to the meaning of sentences: for example, the 'ed' at the end of verbs tells us that the sentence is about something that happened in the past. The sentence 'I visited my parents on Sunday' does not have the same meaning as 'I visit my parents on Sundays'. The difference in their meaning is due to the morpheme for the past, 'ed', in the first sentence and the morpheme for the plural, 's', in the second sentence. Because morphemes influence sentence meaning, children's understanding of morphemes is closely related to reading comprehension.

Our research showed that teaching deaf children about morphemes improves their spelling, reading comprehension and text writing.

Key findings	Major implications
Awareness of morphemes predicts hearing and deaf children's reading comprehension	Teachers should assess awareness of morphemes and reading comprehension to monitor progress in literacy
Deaf children perform less well than hearing children of the same reading age in tasks that measure awareness of morphemes	It is important to include activities that promote their awareness of morphemes in deaf children's literacy teaching programmes
Improvements in deaf children's awareness of morphemes produce gains in reading comprehension	Teaching deaf children about morphemes helps children attain more than one aim in literacy teaching
Improvements in deaf children's awareness of morphemes produces gains in text writing	Teachers can monitor whether their pupils are using their knowledge of morphemes in text writing

How we assess deaf children's awareness of morphemes

Tasks used to assess hearing children's awareness of morphemes are not appropriate for deaf children due to the oral language demands that the tasks make, so we developed a specific task for deaf children. In this task, we show the children a picture and present them with a sentence in the language that they use in school. We ask them to write one word from this sentence, which has a suffix. We give the child one point for each suffix spelled correctly. Research shows that children who are more aware of morphemes spell suffixes better than those who are less aware of morphemes. This Suffix Spelling Task gives a measure of their awareness of morphemes in writing. The procedure for administration and two items from this task are presented in Figure 1.

Figure 1: The procedure and two examples of items in the Suffix Spelling Task

The Suffix Spelling Task
The teacher presents the picture and the sentence (e.g. item 32: 'Yesterday I walked to school'). The language used in school is the language of presentation but the teacher should not sign the 'ed' if Sign Supported English is used in the school. The child has a booklet with the picture and the sentence, but the target word is missing. The child is asked to write it in the space provided. Items 23 and 32 are presented as examples.

23. A person who writes is a w…..........

32. Yesterday I w……… to school.

Deaf children perform less well than hearing children of the same reading ability in the Suffix Spelling Task

We compared the performance of 284 primary school deaf children in the age range 6 to 12 years with that of 72 hearing children in the age range 6 to 9 years but who were in the same reading age band as the deaf children. The distribution of scores for the deaf and the hearing children is presented in Figure 2. It can be easily seen that the deaf children did not do as well as the hearing children in this task even though they were comparable in reading age.

Figure 2: The distribution of scores for deaf and hearing children
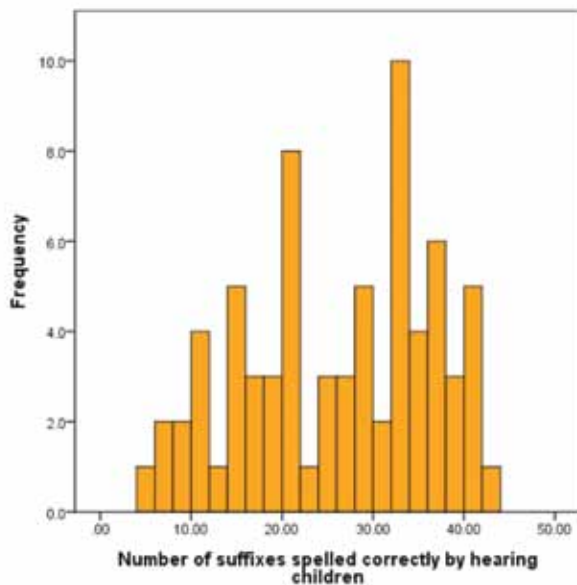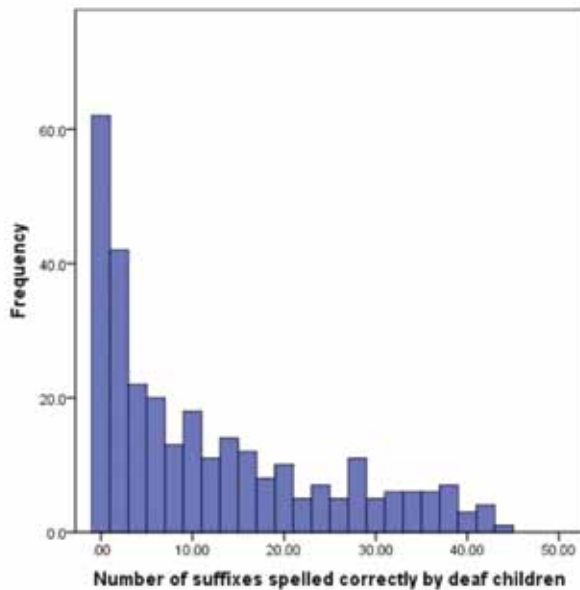
Teaching can lead to improvement in deaf children's awareness of morphemes, reading comprehension and writing skills

In two different research projects, we worked with a total of 270 children and 46 teachers; 135 of the children participated in the teaching programme and formed the taught group and the remaining children formed the comparison group. The teachers of the children in the taught group participated in a professional development training day before starting the teaching programme; the teachers of the children in the comparison group were offered the same professional development training day after the research had been completed.

The teaching activities focused on two aims:

- to develop the children's awareness of morphemes as units of meaning that have a fixed spelling

- to develop their awareness of the connection between morphemes, syntax and the meaning of sentences.

What sorts of activities were used?

The teachers were able to download from our website all the materials for the teaching. All new concepts and morphemes were first introduced through teacher-led activities; slides for these activities and answer sheets for the children were accompanied by a one-page summary of how the task would be used in the class (on the website these are named, for example, Week 1 IT1). Teacher-led activities should be used before other types of activities about the same topic are implemented in the classroom.

Following on from teacher-led activities, there were further exercises, board games, computer games and books devised for work with the same grammatical concepts and morphemes. The activities were organised by weeks and a record of the children's progress through the week could be obtained by marking their progress on the ladder that showed the order in which the activities should be used.

Figure 3 shows the ladder that teachers used to see the sequence of activities and mark the children's progress in Week 1. Figure 4 shows examples of activities about present, past and future (Weeks 5 and 6), the importance of word order (Week 6) and prefixes that tell us about number (Week 7).

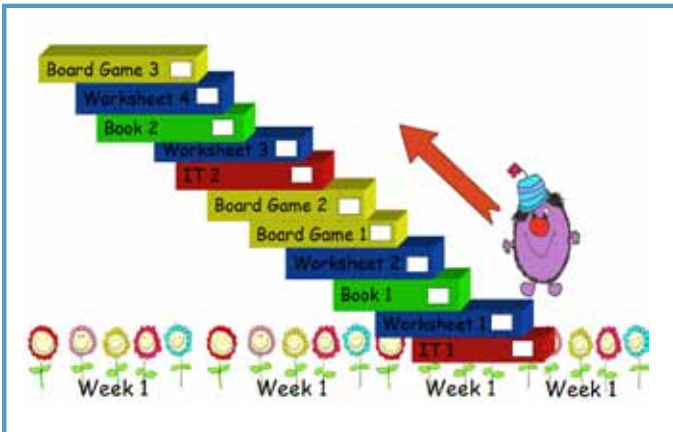Figure 3: The sequence of activities in Week 1

Figure 4: Three examples of different types of activity

Place the other pictures where they go in the timeline.

The sentence must show what is happening in the picture.

The children discuss their answers to the question and only then the answer appears. The children discuss the differences between the words.
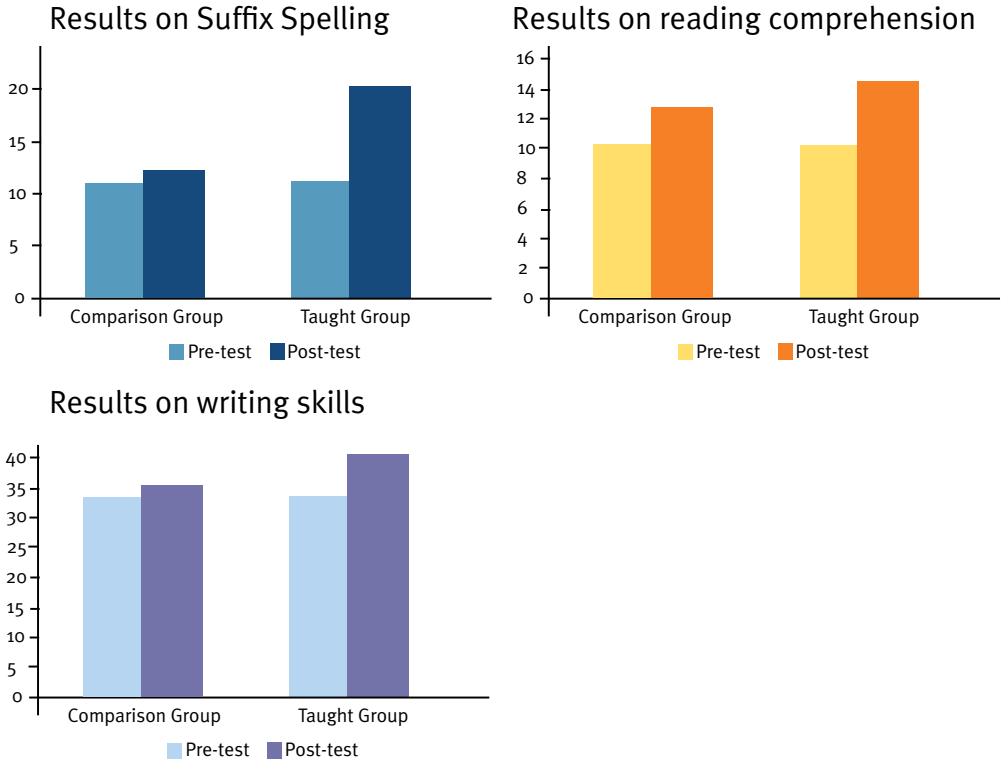
In all teacher-led activities, the slide presents a question, the children are asked to discuss their answers in pairs and then in a whole class discussion. Only then did the teacher show the answer that is provided on the slide. The computer games were directly accessed by the children on our website, but should be used after the teacher has taught the relevant concepts and the children have read the books in school or at home.

The teachers implemented the project at the pace they thought was appropriate for their pupils. At the end of 10 weeks, no teacher had actually completed the programme planned for 10 weeks: all had found it necessary to move at a slower pace than we had expected.

Did the children improve in awareness of morphemes, reading comprehension and writing?

The children in the taught and in the comparison group were assessed before and after the teaching programme in the Suffix Spelling Task in reading comprehension and in text writing. The assessments can be downloaded from the project site. Figure 5 shows graphs comparing the taught and the comparison on each of the assessments at the beginning and the end of the year.

Figure 5: The results of the teaching programme on the different assessments by group

Results on Suffix Spelling

Pre-test Post-test

Results on reading comprehension

Pre-test Post-test

Results on writing skills

Pre-test Post-test

Further information

All the materials can be downloaded from the website:
www.education.ox.ac.uk/research/child-learning/resources-2.

The children can access the computer games on the website:
www.education.ox.ac.uk/ndcs/literacy_corner.php.

Background reading can be found in: Nunes, T. & Bryant, P. (2006) *Improving Literacy by Teaching Morphemes*. London: Routledge.

NDCS provides the following services through our membership scheme. Registration is simple, fast and free to parents and carers of deaf children and professionals working with them. Contact the Freephone Helpline (see below) or register through www.ndcs.org.uk

- A Freephone Helpline 0808 800 8880 (voice and text) offering clear, balanced information on many issues relating to childhood deafness, including schooling and communication options.

- A range of publications for parents and professionals on areas such as audiology, parenting and financial support.

- A website at www.ndcs.org.uk with regularly updated information on all aspects of childhood deafness and access to all NDCS publications.

- A team of family officers who provide information and local support for families of deaf children across the UK.

- Specialist information, advice and support (including representation at hearings if needed) from one of our appeals advisers in relation to the following types of tribunal appeals: education (including disability discrimination, special educational needs (SEN) and, in Scotland, Additional Support for Learning (ASL)); and benefits.

- An audiologist and technology team to provide information about deafness and equipment that may help deaf children.

- Technology Test Drive – an equipment loan service that enables deaf children to try out equipment at home or school.

- Family weekends and special events for families of deaf children.

- Sports, arts and outdoor activities for deaf children and young people.

- A quarterly magazine and regular email updates.

- An online forum for parents and carers to share their experiences at www.ndcs.org.uk/parentplace.

- A website for deaf children and young people to get information, share their experiences and have fun at www.buzz.org.uk.

NDCS is the leading charity dedicated to creating a world without barriers for deaf children and young people.

NDCS Freephone Helpline:
0808 800 8880 (voice and text)

Email: **helpline@ndcs.org.uk**

www.ndcs.org.uk

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