How the project fits with the English National Curriculum
Terezinha Nunes, Diana Burman and Deborah Evans

This brief paper describes the background to the literacy activities designed in our project and then considers its fit with the National Curriculum. The main assumption behind the idea of setting up the family-school partnership is that hearing and deaf children must reach similar aims in literacy; so it is possible to start the children's learning in the classroom with the same activities. However, deaf children in mainstream schools often require extra support and need to learn more than the hearing children from the same activities.

Background

Learning English literacy is particularly difficult for severely and profoundly deaf pupils because letters represent the sounds of the English language and severely and profoundly deaf pupils have no direct experience of these sounds. In order to overcome this lack of experience, teaching literacy to deaf children has focused on improving their access to sounds - through speech therapy, lip reading and cued speech (Power & Leigh, 2000). This approach aims to build their literacy skills through the 'phonological route' – i.e., a pathway to literacy based on the analysis of sounds. This form of teaching can produce some positive results in the long run: average deaf readers aged 9 do not seem to rely much on the phonology in word identification (Beech & Harris, 1997) but successful 13-year-old deaf pupils rely on phonology (Leybaert & Alegria, 1995). Their competence in using the phonological route is related to their speech intelligibility, lip reading and finger spelling abilities (Campbell, 1992), which are enhanced by intensive oral language training. However, success does not come to all but to a few: only 2% of the 355 deaf school leavers tested by Conrad (1977) in the UK read at the age-appropriate level. A more recent study in the USA does not show more positive results: Traxler (2000) found that the 80th percentile for deaf adolescents at age 14 fell in the achievement band considered "below basic"; the best results were obtained by 17-year-olds, and the 80th percentile for this group fell in the achievement band considered "basic", where "partial mastery of the knowledge and skills that are fundamental for satisfactory work is reached".

The phonological route is not the only way in which hearing people access printed words. Adults analyse words both in sound units and in units of meaning, using a route to word identification known as the 'lexical' or 'morphological' route (Caramazza, Laudana, & Romani, 1988). Written English represents sounds through letters, but also represents morphemes, which are basic units of meaning. For example, the word magician has two morphemes: magic, the stem, and ian, a suffix used to form 'person words'. The spelling of magician would be irregular if analysed in terms of letter-sound correspondences because the letter 'c' represents a sound normally represented by 'sh'. However, when morpheme representation is considered, magician is a regular word. In order to master the spelling of words that are regular when analysed into morphemes, we use the morphological route.

Our previous work (Nunes & Bryant, 2006) has shown that hearing children benefit significantly from participation in classroom activities aimed at increasing their awareness of morphemes and at helping them make a connection between morphemes and spelling. The children whose teachers used our programme in the classroom showed significant more progress both in spelling words that cannot be spelled on the basis of letter-sound correspondences and in developing word analysis strategies that help them increase their vocabulary. Both of these achievements – improving children's spelling and increasing their vocabulary – are explicit aims of the National Curriculum for hearing children.

The morphological route to reading and writing has been largely ignored in teaching literacy to deaf children: most efforts have focused on the phonological route. Our proposal is to develop this so far under-used resource to promote deaf children's literacy. It is not suggested that one form of teaching should replace the other: both forms of teaching are necessary to improve deaf children's literacy, but currently the provision only considers one aspect of literacy learning.

The fit of our programme with the National Curriculum

It is necessary to acknowledge from the start that the guidance offered to teachers and teaching assistants in the website of the Department for Children, Schools and Families (DCSF) was designed with hearing children in mind. Thus many of the assumptions behind the teaching are not appropriate for teaching deaf children. Deaf children's needs would normally be met through personalised assessments and learning goals, leading to Individualised Educational Programmes (IEP). The new emphasis on phonics and the recommended quick pace of phonics teaching is an example of this design of instruction (www.standards.dfes.gov.uk/primarywork/foundation/ - consulted 04/02/2008). Phonics will not be easily mastered by deaf children, who would then be given further assistance to reach the same aims.

Nevertheless, a programme that promotes awareness of morphemes and grammar, as our programme does, has positive effects on hearing children's and deaf children's literacy. Our programme was originally developed for hearing children with the aim of promoting their spelling development and vocabulary. It was later expanded to include more activities to offer deaf children increased opportunities for learning. Our aim for mainstream schools is that the teachers in these schools would introduce the activities in the classroom and the deaf children's parents would expand their children's literacy activities in the home.

The classroom aims would be in line with aims of the National Curriculum: for example, to build a spelling bank that allows children to understand the structure of words.

Our activities help children achieve this aim by considering the morphological structure of words. Some examples can clarify this point.

Some words sound identical at the end (magician, electrician, musician, confession, education, injection) but are spelled differently. Phonics does not help us spell them correctly but awareness of their morphological structure does.

magician = magic + ian; electrician = electic + ian; musician = music + ian: "ian" is used to form agents (person nouns, in children's terms)

confession = confess + ion; education = educate + ion; injection = inject + ion: "ion" is used to form abstract nouns

Hearing children who participate in activities that aim to enhance their understanding of the structure of these words would be forming a spelling bank; deaf children would be learning new vocabulary <u>and</u> forming a spelling bank.

This is a relatively advanced activity (more than half of a sample of about 7,000 hearing children in Year 5 spelled the word "electrician" with "ion" at the end). We have also developed simpler activities that focus on sentence structure, which are useful for hearing and deaf children, but help them accomplish different aims. Under the aims of the National Curriculum "Grammar for writing", it is stated that (hearing) children must learn to analyse their written sentences in order to learn to use capital letters and punctuation. We suggest that deaf children often need to learn more

about English sentence structure in order to ensure that they can communicate meaning, and also learn to use capitals and punctuation correctly. Both of these aims (learning to communicate through writing and use of punctuation) are explicit in the National Curriculum Primary Framework for Literacy under the heading "Sentence structure and punctuation". It is likely that hearing children will reach an understanding of sentence structure more quickly and that the deaf children will benefit from complementary activities carried out in school and in the home, through the partnership.

The challenge for teachers

The challenge for teachers is to identify aims suitable for their deaf pupils. Teachers face two obstacles. First, there is great variation in deaf children's attainments, and this variation is not predicted from the deaf children's age. Deaf children in the same classroom may be at quite different levels. Second, it is easy for teachers to underestimate the difficulty of some tasks for their deaf pupils. Many activities that we have developed may appear to teachers very simple, and perhaps below the level of their own pupils.

However, research shows that deaf children have unexpectedly high levels of difficulty with English morphology and grammar. Deaf and hearing children matched on their ability to spell the stems of words (e.g. to spell "magic") differ significantly on their ability to spell the endings of words: the deaf children are much more likely to misspell or, more commonly, not to spell at all the suffix ("ian" will be misspelled or missed out all together). Teachers could think that this is a detail, but this detail is of great importance to reading comprehension and to communication through writing. For example, hearing children with a reading age of 9 years have no difficulty in understanding that a sentence is in the plural but deaf children who are older and have the same reading age show considerable difficulty with reading comprehension when the only indication of the plural is in the final "s". If children read the sentence "the apples fell from the tree" and are shown two pictures, one which depicts one apple under the apple tree and a second which depicts more apples under the apple tree, hearing children show almost 100% correct responses whereas deaf children perform at chance level (around 50% correct).

In many of the exercises that we designed, hearing and deaf children would be learning different things. In the latter example, the hearing children would be learning spelling: they would learn that many words that end in the /z/ sound (such as "bees") are spelled with "s" because they are formed by the stem plus the plural ending "bee+s"). The deaf children would be learning simultaneously about spelling and how the "s" conveys the meaning of plurality.

The challenge for teachers in the use of the materials in our programme is to understand that the same activity can be performed at different levels of competence and with different aims by different learners. Teachers will need to reflect on how to use our assessments to identify where to start the programme with their own pupils and to see how the same activity can have different aims for different pupils.

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