Teaching spelling to secondary level pupils with severe dyslexia or specific learning difficulties
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In recent years considerable research effort has been directed at clarifying the early development of reading and writing skills, and the problems that occur in dyslexic children and their related cognitive strengths and weaknesses. There is a recognition of the importance of phonological processing to the acquisition of literacy skills (Bryant and Bradley, 1985) and current models of reading development suggest the need for precise phonological codes for mapping onto orthographic units such as words or letters at the earliest stages (Adams, 1990; Ehri, 1992; Van Orden et al., 1990). Studies with dyslexic subjects confirm weaknesses in these key areas. Difficulties are found in phonological awareness using methods such as syllable rapping, rhyming, blending, and spoonerisms, and in phonological processing using methods such as non-word repetition and naming (Olson et al., 1990; Snowling, 1991; Pumfrey and Reason, 1991). Weaknesses in verbal memory in dyslexics have long been demonstrated (Rugel, 1974).

There are, however, limited well-structured and appropriately controlled studies of teaching interventions which contrast qualitatively different teaching methods with carefully judged measures of cognitive development. The results of some recent studies are described which demonstrate a range in individual patterns and responses. More detailed papers are available from the Helen Arkell Dyslexia Centre.

Groups of dyslexic, age-matched, literacy level matched, and "slower learning" children of ages 1 1 to 13 years were tested on a range of literacy and cognitive measures over a period of 2 years. The dyslexics and "slower learners" generally showed relative weakness in language and phonological processing (as for example viewed by their ability to perform spoonerisms) and made disappointing progress in word level literacy skills and number skills. There was, however, a group of seven dyslexics who made advances in literacy skills and phonological awareness, and acquired a quite unique highly structured phonic approach to word reading and spelling. It seemed that some severe dyslexics of senior school age could build a somewhat idiosyncratic but effective phonic-based approach to literacy material through a highly structured phonic-based teaching programme. Some children may benefit from teaching to their weaknesses.

In contrast, single case studies have shown dyslexics responding best in learning spellings using methods based in "high level" visual and semantic codes. Finding words in words (such as "rich" and "hard" in "Richard") has been especially effective. Teaching involving visual skills and rules has been successful, whereas methods based upon phonic units such as blending and simultaneous oral spelling have shown limited benefits. Some children benefit from teaching which utilises their strengths which for dyslexics often lie in visual and semantic areas.

The results of single case studies have been confirmed and have shown generalisation in a group study where dyslexics, "slower learners" and spelling matched controls were taught words to spell using phonic, tracing and words-in-words methods. The dyslexics were significantly different in benefitting from the visual and semantic opportunities offered in words in words. The "slower learners" were significantly different in benefitting from the careful step-by-step build up offered in basic phonic approaches. These significant differences in reactions to teaching methods are important in clarifying the particular development of dyslexic children in comparison to normal development and difficulties found in "slower learners".

Further studies have viewed reactions of dyslexics to a range of visually based methods including words-in-words, look-cover-write- check, visualisation, and neurolinguistic programming. All methods have been found to be effective although individual observations have been made.

It is concluded that qualitatively different teaching methods need to be evaluated in the light of any individual's development, and that just structure and reinforcement being applied to teaching methods is not sufficient to enable learning in a student with severe specific learning difficulties. There are implications for the training of teachers, and the provision of teachers, with suitable skills to assess children's development and appraise responses to teaching and adapt this appropriately. These implications will involve resourcing of special needs and opportunities for withdrawal specialist teaching for children in schools, and the teacher training and finance offered to schools. Reactions of children to teaching interventions will add to our knowledge of the theoretical bases for literacy and dyslexia, and will extend our ability to respond to many different learning and teaching styles.

We have been fortunate in being offered a grant by the Department for Education enabling us to extend this work with infant-aged children over the next few years.

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