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R.M. Joshi and C.K. Leong (eds.), *Reading Disabilities: Diagnosis and Component Processes*. Kluwer Academic Publishers, Dordrecht, 1993. Pp. 344. ISBN 0 7923 2302 5. US \$ 134.00

In the fall of 1991 a NATO Advanced Study Institute conference was held in Toulouse, France on: Differential diagnosis and treatments of reading and writing disorders. The volume *Reading Disabilities: Diagnosis and Component Processes* is part one of a two-volume book based on its proceedings. The companion volume will also be published by Kluwer Academic Publishers and carries the title, *Developmental and Acquired Dyslexia: Neuropsychological and Neurolinguistic Perspectives*.

Twelve of the 18 contributions are based on English research (USA, Canada, UK, Australia, and New Zealand), whereas the remaining chapters originated in six different non-English speaking European countries (Germany, Belgium, Sweden, Denmark, Greece, and The Netherlands). The book consists of three parts.

The first part deals with the problem of 'differential diagnosis of reading disabilities'. Stanovich opens the discussion on the problem that has surrounded us ever since the World Federation of Neurology defined dyslexia as, "A disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence, and socio-cultural opportunity". This definition emphasises the difference between children with an unexpected reading disability (not predicted by the child's general intelligence), the so-called real dyslexics, and those that do not show a discrepancy between their reading performance and their IQ. This latter group is often referred to as 'garden-variety' poor readers. Stanovich shows in a clear argument that this does not lead to what we are actually trying to do, namely, predicting how much growth in reading comprehension ability would be expected if the decoding deficit were to be totally remediated. The underlying assumption here, for which there is abundant evidence, is that the core of the reading problem resides in an inefficient word identification process.

His proposal is to use listening comprehension as an alternative measure for discriminating between dyslexics and garden-variety poor readers. Given that we want to distinguish between the two types of reading disabilities, I find his argument insightful. This, however, is the issue. Why do we want to distinguish between these forms of reading disabilities if the real problem exists in word identification. This is exactly the argument put forward by Siegel. Her passionate call against the use of IQ test to

distinguish between subgroups of reading disabled children holds four main arguments. The first is theoretical, the debate on what IQ tests are supposed to measure is still on, secondly, IQ does not contribute independent variance to word reading, thirdly, no statistical differences occur among the two types of reading disabled children at each IQ level (Siegel, 1988), and finally a practical argument, there is no real evidence that either of the two groups gain more from remedial teaching.

In the second part of the book, 'Access to language-related component processes', Tunmer and Hoover discuss three variance models of language-related factors in reading disabilities. The shared premise of each of these models is the so-called 'Simple view of reading', which states that differences in reading comprehension are a function of word recognition (i.e., decoding) and listening comprehension (Hoover and Gough, 1990). Phonological recoding and listening comprehension and the interaction between the two account for 75% to 90% of the variance in reading comprehension in children from Grade 1 to Grade 4.

The first variance model is called the 'environmental model' of which Ehri is the leading proponent. She assumes that reading difficulties are the result of experiential factors, that is, inadequate exposure to print-related activities prior to schooling and inadequate instruction. Phonological deficiencies are not a pre-existing problem, but are the result of these extrinsic factors. The model that is the antithesis of the environmental model is the 'phonological "g" model'. Liberman and Stanovich are, amongst a larger number, proponents of this model, in which intrinsic factors, namely, constitutional differences in the phonological processing component, are the main determinant of reading problems. Not surprisingly, the solution to this dichotomy is the synthesis formulated in Tunmer and Hoover's 'cognitive development model' which proposes that both extrinsic and intrinsic factors contribute to the development of reading problems. There is not only abundant evidence indicating that phonological problems are primary in reading difficulties, but there also appears to be a reciprocal relationship between the already existing problems and inadequate instruction or treatment (Matthew effect, Stanovich, 1986). Although it is a clear chapter, it suffers from the same problem as most of the earlier chapters, old wine in new bottles.

This is not the case for the article by Morais, because he previews some new data, which will be published elsewhere. He makes a case for distinguishing between phonemic awareness and phonological awareness. Phonemic awareness is the set of *conscious* representations of the individual phonemes of a language (italics is mine), whereas phonological awareness is the more general ability of being aware of perceptual representations of speech (knowing which words rhyme or which of two words is the longer one). Morais claims not only that phonological awareness does not imply phonemic awareness, but also argues that phonemic awareness depends on receiving instruction in the alphabetic code (a similar view is expressed by Olson, 1993). He states that phonemic awareness and knowledge of the alphabet are acquired (see the seminal study by Morais et al., 1979), lost (indicated by four case studies of severe dyslexics) and regained again (shown by the re-education of a deep dyslexic patient) together.

Olofsson, on the other hand, argues, that it is possible to train phonemic awareness in children without explicit instruction in the alphabet, which is subsequently beneficial for later reading and spelling. Unfortunately, however, Olofsson uses the terms phonological

and phonemic awareness interchangeably, it therefore remains unclear whether he refers to the same kind of conscious knowledge as Morais was talking about.

Dodd, Russell and Oerlemans present data which suggest that children with a past history of phonological speech disorders, thus after the impairment is corrected, show poorer reading and spelling skills than a control group. Although the statistical proof is somewhat weak (only in 2 out of the 8 tasks a significant effect emerged), I think this an interesting finding. It not only corroborates previous research, but the issue also deserves further investigation, because it seems to indicate that the origin of reading difficulties (i.e., the phonological problem) can be traced back to a much earlier stage in life than school. This in turn, may be very useful information for treatment and/or prevention.

Hulme and Snowling show that the reading behaviour of a phonological dyslexic boy (JM) can also be explained in terms of a subsymbolic framework as suggested by Van Orden et al. (1990). JM, who had severe problems in learning to read, acquired a level for reading words that was almost indistinguishable from reading age controls, but remained severely impaired in reading pseudowords. According to standard 'Dual-route' theory we have to conclude that JM solely reads word via direct access, because his indirect or phonological (or assembly) route appears to be impaired. More in accordance with a non-information processing theory is that JM lacks phonological representations (actually an inappropriate term in this context) at the sufficient level of specification to allow the creation of mappings between phonology and orthography.

The main theme of the final part of the volume is 'Reading/spelling strategies', and only contains empirical studies. I will only discuss the most interesting findings. Elbro falsifies the hypothesis of distinct subtypes of dyslexia. Reading strategies in both normals and dyslexics appear to be unimodally distributed, suggesting that the assumption of two categories of dyslexics, namely letter-by-letter readers and whole-word readers is unjustified.

A rather surprising and promising result in the field of instruction is the finding of Uhry. Sounding out and playing games on the computer, which mainly involved spelling training, appear to have a beneficial effect on the reading of nonwords in dyslectics. Not only are transfer effects hard to get, but it is also rather difficult to have reading-disabled children read nonwords. Most dyslexics finally manage to achieve a sufficient word reading level, but remain at a loss when they have to read nonwords. We have to be cautious not to be too over optimistic, because the effects were established with 3 dyslexic subjects. Nevertheless, the result is very interesting and deserves further investigation.

Porpodas performed three experiments and observed effects in Greek-speaking children that were similar to those obtained with English-speaking subjects. More advanced Grade 2 children showed better employment of phonetic coding for linguistic information than less advanced readers. Porpodas did not conclude from his data that less advanced readers were actually using non-phonological information to perform the task, but suggested that the less advanced readers phonologic representation is less well formed or less stable than that of the more advanced readers. As he already mentioned himself, the issue is not new, but it is important to know whether phenomena established with the English orthography are also apparent in languages other than Latin-based alphabets. The Greek language is particularly interesting, because it is also an alphabeti-

cal writing system, and its orthography is like the English rather deep, but unlike the English language it is a Greek-based alphabet. Cross-linguistic research on word recognition is important, because the decision of theoretical issues should not be limited to the language under study.

In the final chapter of the book van den Bos and Spelberg discuss the results of an experiment with two groups of children: one group from a regular primary school and one from a special primary school. Their conclusion is that reading comprehension of children from special schools is predicted by the same factors as those of the normal population. Therefore, a distinction between school types does not seem relevant.

The general picture emerging from this volume on reading disabilities is that trying to distinguish between the real dyslexics and garden-variety poor readers, between poor readers from special schools and those from regular schools, and between whole-word and letter-by-letter readers is a pointless enterprise. Not only, because there is hardly any empirical evidence that supports subtyping, but also because most researchers seem to agree that the main problem in developmental dyslexia is a deficiency in the phonological component of the word identification process.

The issues discussed in this book are indeed today's current topics, but I cannot escape the impression that that is all there is to it. The theoretical problems raised are not new, and the results of the empirical studies cannot be interpreted properly, because in most cases their description is incomplete. All in all, I do not think we are getting enough scientific run for our money here.

Anna M.T. Bosman
 Department of Special Education
 University of Nijmegen
 P.O. Box 9104
 6500 HE Nijmegen
 The Netherlands
 e-mail: a.bosman@ped.kun.nl

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