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Early Prevention of Learning Disabilities: Comments on Lyytinen and Erskine, and Fuchs

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Introduction

The identification and prevention of learning disabilities and subsequent intervention are prime objectives for those concerned with early childhood development. It is known that untreated learning difficulties lead to high rates of mental illness;[1] social and emotional problems;[2] behaviour problems in school[3] and incarceration in our prison system.[4,5] Failure in early reading is highly correlated with overall school failure and later antisocial behaviour.[5,6] The papers presented by Lyytinen and Erskine, and Fuchs are worthy representations of current empirical research in the two very important areas of early literacy and maths development.

Research and Conclusions

In their overview of early identification and prevention of reading difficulty, Lyytinen and Erskine highlight the important issue of unresolved learning difficulties and the subsequent lack of

motivation resulting from failure. Without adequate and effective treatment, only a minority of children with reading difficulties achieve satisfactory levels of reading. It is therefore imperative that we understand, design and evaluate the optimum approaches for these children.

The authors have brought to our attention the considerable difficulties associated with “irregular” versus “regular” orthographies. This is an important consideration when we attempt to compare literacy levels in different contexts. In contrast to the figures of 6% and 3% quoted in this paper, up to 15% of Australian children still fail national benchmark tests in reading, despite receiving intervention support.[7]

The point regarding the genetic influence on reading disability is timely and one that must be emphasized in current literature on effective screening measures.[8] The point is also made that children who have the most persistent reading problems are those with a familial background of dyslexia.

The two research questions posed are how to identify those in need as early as possible and the actual nature of the intervention.

While the authors acknowledge all the early indicators of reading difficulty, including receptive and expressive language and phonological skills, they seem to have concentrated on letter knowledge as the only predictor on the grounds that it is easy to use and a reliable predictor. Rapid naming is also mentioned, but it is not clear in the text whether this means rapid naming of codes (letters or numbers) or objects. Codes are better predictors and they also predict later reading comprehension rather than the acquisition of reading per se. I would argue that alphabet knowledge is influenced by “nurture” versus “nature,” and if we imply that familial influences are vital, then we should be concentrating on those skills associated with familial incidence, namely output phonology and vocabulary.[8,9]

Computer games that enhance letter-sound relationships are ideal as a form of practice and are certainly cost-effective and motivational, but children with potentially severe inherited reading difficulties will require much more explicit intervention than that proposed in this paper. Most children will require instruction in phonological awareness (awareness of the sound structure of words, e.g. rhyme) prior to receiving instruction in phonics (sound-letter relationships). This point is made in the implications section: “Children, especially those whose familial background points to the possibility of risk for reading failure, should be attended to from age two with regard to

language development.” Perhaps this area should be expanded and include relevant screening measures at age two for language development? Byrne[10] makes the point that children who are slower at mastering foundation literacy knowledge and concepts are going to require more of everything – more explicit instruction, more opportunities to practice, and more general assistance: the need is for differential approaches and rate of instruction.

As with literacy, low mathematics competence is also related to lifelong difficulties in school and the workplace. Fuchs demonstrates the components of number combinations and word problems and how both of these skills may contribute to mathematics disability.

Conceptual instruction is included, as well as drill and practice, and this important concept is often neglected in the teaching of mathematics foundation skills. Fuchs also emphasizes the need for early intervention versus remedial instruction in later grades. This again alleviates all the attributes associated with failure, such as low self-esteem and related behaviour problems.

The latest research reported is very exciting in that a combination of approaches results in better outcomes, with computers used to enhance drill and practice and explicit conceptual instruction. All too often, we see computer programs being used irresponsibly, without the scaffolding required by providing explicit teaching.

The metacognitive strategies reported are also admirable, and again this is an area that should be combined with drill and practice in the teaching of mathematics. The use of planning and reflection, together with active participation in the learning process, and the explicit teaching of conceptual knowledge, benefits students in three ways: (1) in comprehension and learning of the concepts; (2) in understanding the steps involved in working out a solution; and (3) in their ability to use and generalize their knowledge to new situations.[11]

The schema-based strategies are also exciting and build on the use of metacognitive strategies. I do not see these two strategies as being mutually exclusive. Consideration has also been given to long-term maintenance, which is an area often overlooked in the area of intervention for students with learning difficulties.

Implications for Development and Policy

Resolving questions about optimum approaches in the teaching of literacy and mathematics for children at risk is more than an academic question; it has ramifications at the national and

international levels, at the teacher preparation level, at the classroom and family levels, as well as enhancing the academic, emotional and social well-being of the child.

Failure in early reading is highly correlated with overall school failure and later behaviour and social and emotional difficulties, with reading considered a protective factor that helps to counter social and/or economic disadvantage.[12] Theoretical, experimental and clinical evidence points to the necessity of helping unskilled readers acquire explicit knowledge of phonological word structure,[13] and this should be part of any intervention program for struggling readers.

As for computer-assisted learning, it should be noted that young children's literacy development involves more than rote learning; it is a dynamic thinking and linguistic process, incorporating problem-solving, discussion, reflection and decision-making.[14] Practice is often seen as an end in itself, a way of ensuring that learners commit to memory a procedure or fact. If this is the case, it can undermine or sidestep any attempts that have been made at constructive, meaningful literacy learning. The student's practice has to be in a form that makes sense of the literacy task and creates fundamental ways of thinking that become the learner's own, so that the child activates that thinking to develop new ideas and carries it to real reading problems outside the classroom.

Both papers cover aspects of multi-dimensional learning, which should be the focus of effective intervention for our children who may be at risk of developing learning difficulties.

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