Accepted Submission for The National Enquiry Into The Teaching Of Literacy - Intervention For Reading Disabilities

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Executive Summary

The National Enquiry into the Teaching of Literacy has been initiated from a concern that a large percentage of school children do not read at their cognitive levels due to reading difficulties.

Some of these children have microscopic flaws in their brain anatomy, which inhibit their ability to acquire appropriate literacy skills. Such children are more accurately described as having reading disabilities.

The distinction between reading difficulties and reading disabilities is not always clear. As a result, conventional learning support is undertaken in some cases where an intervention would have been more appropriate.

In the context of this enquiry, the distinction needs to be clear, lest unrealistic expectations develop that better teaching would also be as effective for those with reading disabilities as for those with reading difficulties.

The available choice for evidence-based interventions is relatively small. This is a consequence from the far greater emphasis given to research than to the development of interventions, which logically need to follow the research. Development times for new interventions are usually prohibitively long for children needing help now.

A new intervention approach that utilized currently available research has been developed, that appears to help many children with reading disabilities. The justification for its science base, the basis of its efficacy and its suitability as a complementary tool to better teaching is discussed in this submission.

The Case for Interventions in Reading Disabilities

The importance of phonological awareness for the acquisition of literacy has been universally accepted. Numerous publications have dealt with the best ways to teach it, taking into consideration how children tend to progress from a basic onset and rhyme approach, through to a mature phonemic awareness using single sight and sound units. Hence the systematic teaching of phonics has gained a secure place as an essential element in any early literacy program.

There are a number of commercially available, evidence based programmes that are successful in teaching phonics to most children, which lead to reading success. For a small percentage of children, success seems impervious to most teaching approaches.

This group of children is likely to have reading disabilities, such as dyslexia, which could well be due to microscopic flaws in brain anatomy, first highlighted in 1979 by Galaburda, from the Harvard School of Medicine. Flaws such as ectopias, which are nerve cells that are usually located well below the brain surface, but have pushed through to the outer layers; or irregular surface folds called microgyria. Both flaws were found in the language centers of dyslexic brains.

Subsequently, a connection was found between these flaws and reduced auditory processing speeds, and a reduced sensitivity to small differences in frequency modulation. These auditory speed and sensitivity degradations, although small, are nevertheless sufficient to prevent some children from hearing the differences between some onset consonants or other consonant/vowel combinations.

Other flaws have been found in brain anatomy, such as undersized and therefore debilitated receptive cell fields in an area at the back of the brain that processes transient vision, sometimes called the V5/MT area. A connection between these cellular flaws and a

degradation of visual processing speed has also been shown.

Debilitated cells have also been found in the small 'relay station' at mid brain, called the lateral geniculate nucleus (LGN). The magnocellular (M) pathways, which process rapid visual information, pass through the LGN on the way to the V5/MT area. Transient auditory signals also pass through LGN alongside the M pathways.

It has been argued by some researchers that debilitated cells in an area where visual and auditory processing takes place in close proximity, could be the reason that some fail to achieve a visual-to-auditory 'bond', an essential pre-condition for creating the 'mnemonic' effect that leads to the development of a normal working sight vocabulary, then onto fluent reading.

The M pathways also play the dominant role in controlling the eye movements most relevant to reading. Such movements are problematical in significant numbers of individuals with a reading disability. The M pathways also play a critical role in peripheral vision, which becomes more important in the transition to fluent reading.

The neural picture of brain flaws is not intended to be complete, but to show that the implacable lack of reading progress that teachers sometimes encounter could well be due to neural causes, which underlie all reading disabilities.

It would be regrettable therefore, if the improved teaching standards that are likely to flow from this enquiry, develop into a belief that better teaching would be good enough for all children. Some children will still need a specialized intervention before good teaching can be effective, and it is these children who are the focus of this submission.

Interventions in Schools

Computer based interventions could easily be incorporated into the school system, for those children suspected of reading disabilities.

Early screening for all children and early phonics based programmes could reduce the incidence of those who might need a specialised intervention in later years. Nevertheless, this could still leave significant numbers that would need further help. In its current form, an intervention like Cellfield is suitable for children of eight years and above, which would address those children who failed to respond earlier.

There are cases however, where early phonics based programmes are successful in early reading, but not in making the transition to fluent reading in later years. The data and psychologist's observations show that Cellfield is generally suitable for the transition to fluent reading, as well as for those who would not be categorized as being reading disabled, but who have problems with comprehension, spelling, short term auditory and visual working memory, or poor reading fluency.

Such an intervention could enable learning support programmes to be more effective, bring more children out of learning support back into the normal class environment, and make good readers better readers.

Conclusions

Evidence based teaching methods that include systematic phonics are likely to raise Australian literacy rates. Yet for neurophysiological and some environmental factors, a significant percentage of children will still have reading problems, which if not addressed by specialized interventions, are likely to result in lost years, wasted school effort, frustrated parents and psychologically damaged children facing a large literacy gap that could keep growing.

Currently, substantial numbers of parents move outside the school system, trying various putative remediations with little prior knowledge, great expense and little gain.

For the above reasons, evidence based interventions that are currently available need to be considered as a complementary part of the educational system.

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