

Maurice Carder: Review of

‘Proust and the Squid: the story and science of the reading brain’, by Maryanne Wolf (2008). Cambridge, UK: Icon Books.

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For any educator this book is a must. We all read: teachers, students, administrators. And Wolf takes the reader of this book through every aspect of reading, from its origins, to how the type of script shapes the reading brain, why particular writing systems – like English, for example – have such apparent peculiarities of spelling or pronunciation, why an efficient reading brain has more time to think, and, especially important for educators, why reading from an early age is key to future development. The book covers the origins of reading, how the brain adapted itself to the process, and how reading enables the reader to build on previously learned knowledge to acquire a deeper development of their intellectual potential. Wolf presents valid evidence to show that the assumption that simply thinking faster and having more information is better requires vigorous questioning.

The author draws on neuro-science, psychology, linguistics and education to give a clearly written, comprehensive account of our intellectual development and asks us to ‘ponder the profoundly creative quality at the heart of reading words. Nothing in our intellectual development should be less taken for granted ... as the transition to a digital culture accelerates its pace’.

The book has particularly useful insights for international educators, with examples of how different writing conventions shape the reading brain. Chinese readers, for example, use ‘a very particular set of neuronal connections that differ in significant ways from the pathways used in reading English’, so that when Chinese readers first attempt to read in English their brains try to use the Chinese-based neuronal pathways that they are accustomed to.

Wolf explains the choice of title for her book by writing that Proust visualised reading as ‘a kind of intellectual sanctuary’. In this space, human beings can access many different realities, each of which can transform readers’ intellectual lives. The squid, on the other hand, is introduced to show how scientists came to understand, through investigation of the creature’s long central axon, how neurons fire and transmit to each other and even repair and compensate if necessary. This relates to how cognitive neuro-scientists today look into how some cognitive processes work in the brain. Since the reading process is a relatively new cultural invention in humans, the study of what the human brain has to do in order to read can be compared to the study of the squid in neuroscience. Thus the ‘intellectual sanctuary’ of Proust and the insights of neuro-science to the squid are complementary ways of understanding various aspects of the reading process. Quotes from Proust are given to exemplify how reading can take us out of our own consciousness into that of another person, or to a different age, or to a separate culture, enriching us at every stage.

The book is full of facts and statistics that bring home to us how much we have learned, but also how much children have to learn. For example, as writing was invented our brains had to adapt slowly so that it took 2,000 years before the earliest writing systems developed into the almost perfect alphabet developed by the early Greeks. Then Wolf informs us that today children have to make progress in understanding print in about 2,000 days. She also quotes a study that found that by kindergarten age a gap of some 32 million spoken words may separate some children in linguistically impoverished homes from those in more middle-class environments.

Furthermore, it has been calculated that the difference between linguistically advantaged children and disadvantaged children entering first grade is about 15,000 words. This information reinforces the view that the amount of time children spend listening to parents or others read to them is probably the best prediction of later reading ability. Quite simply, the more that young children are read to, the more they will understand ‘the language of books’, and continually develop their vocabulary, their ability to understand grammar and how sentences and paragraphs are structured, and become aware of the subtle nuances of tone and emphasis within words.

The learning of language per se is wired into the human brain from birth, and children acquire this gift as they develop. This is not the case with reading, which is a skill that has to be learned. Those who cannot recall the stage when they learned to read might find an analogy in learning to play a musical instrument: reading the music, or notes, is a skill that may seem insuperable at first, but accomplished musicians can read and interpret a musical score as quickly as non-musicians read a book.

In an important section of the book, Wolf points out the need for children to be actively taught certain phonological and orthographic constituent parts of English. An excerpt is given of common words with the vowel pair 'ea' and its wide range of possible pronunciations: 'There once was a beautiful bear who sat on a seat near to breaking and read by the hearth about how the earth was created. She smiled beatifically, full of ideas for the realm of her winter dreams.'

Various pronunciation 'rules' are then given, and suggestions as to how the different pronunciations can best be taught and learned, showing how much this book is not only fascinating and illuminating but also practical and applicable to the classroom context. Wolf also points out that 'precious little explicit vocabulary instruction goes on in most classrooms', so children who are 'word poor' are again disadvantaged. Wolf recommends explicit teaching of morphology – 'units of meaning' – with the constituent parts of a word: stems, roots, prefixes and suffixes. In this way children can learn to decode new words, for example: sign, signer, signed, signing, and signature; or how a word such as 'beheaded' can be broken down into 'be – head – ed'.

Among interesting research results for those involved with young children is a section on the best age for them to begin to read, especially important in a competitive environment where there are commercial pre-reading programmes promoting the idea that 'reading early will give children an advantage later on in school'. Research by Goswami entailing a cross-language study of three different European languages found that 'those who were asked to begin to learn to read at age five did less well than those who began to learn at age seven'. Wolf concludes that efforts to teach a child to read before four or five years of age 'are biologically precipitate and potentially counter-productive', and suggest that 'there are excellent biological reasons

why reading comes in its own good time'. Such a view reflects that of the child psychologist David Elkind, author of 'the Hurried Child', in which he wrote of the urge to push children to achieve, which is become steadily worse.

A crucial area for parents and educators to be aware of is the potential impact of middle ear infections on young children. Wolf gives the example of a child hearing the new word 'purr', then a few days later 'pill', then 'purple'. An ear infection will give inconsistent acoustic information 'leading to three different sound representations for the word "purple"'. This will result in both cognitive confusion and a requirement for more time to gain new vocabulary, and could even result in a child not developing a complete repertoire of the phonemes (units of sound) of the language. Results have shown that children with untreated ear infections were more likely to have later reading problems.

There is a brief but informative section on the effects of bilingualism on reading, described as 'an extraordinary, complicated cognitive investment for children', albeit representing an ever-increasing reality for huge numbers of students. It is pointed out that the advantages are more important than the possible 'up-front costs', given the important proviso that the child learns each language well.

There are several salient points that Wolf makes on bilingualism, emphasising that because the young brain retains plasticity, children at an early age can become proficient in two or more languages more easily than at a later stage, the main advantage being that they will speak them with no 'accent'. Three principles are then given, seen as the most dominating. First is the fact that a child who has led a language enriched life at home will be able to learn concepts or words in the second language(s) more easily. Second is the importance of teachers and parents understanding common-sense facts about language: if a child has not learned to read, then she cannot be expected to relate new sounds to new words in books in a new language: 'Both the new phonemes of the second language and the new vocabulary of school and books need to happen in each classroom for each learner'.

The third principle is about the age when children become bilingual, and Wolf emphasises that ‘the earlier the better’, for both oral and written skills. A neuro-scientist, Petitto, found that ‘early bilingual exposure (before age three) had a positive effect, with language and reading comparable to those of monolinguals’. The research also showed (from imaging studies of adults who had themselves been bilinguals at an early age) that their brains showed the same overlapping regions as those of monolinguals. In contrast, adults who had become bilingual at a later age had a more bilateral pattern.

Wolf summarises by saying that Petitto’s research has demonstrated that early bilinguals appear to have cognitive advantages in terms of linguistic flexibility and multi-tasking. It is also clear that for children carefully nurtured at home on one or two languages it will not be so challenging to embark on a further language in school as they will be able to connect familiar words and concepts from one language to another.

The concluding section of the book is profoundly relevant for our times as Wolf delves into the concerns of Socrates about the effect of reading and writing on our critical faculties, and today’s society of ‘internet decoders of information’. Socrates feared that the permanence of the written language would mean less searching for true knowledge, leading in turn to the death of human virtue. Wolf concludes by writing that ‘I fear that many of our children are in danger of becoming ... a society of decoders of information, whose false sense of knowing distracts them from a deeper development of their intellectual potential. It does not need to be so, if we teach them well ...’. The solution presented is to teach our children to switch between different presentations of written language and different modes of analysis ‘to preserve the capacities of two systems and appreciate why both are precious’.