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The Magic of the Book. The Reflections of a Reading Worrier about the Role of Books

“Among the many worlds which man did not receive as a gift of nature, but which he created with his own spirit, the world of books is the greatest. Every child, scrawling his first letters on his slate and attempting to read for the first time, in so doing, enters an artificial and most complicated world: to know the laws and rules of this world completely and to practice them perfectly, no single human life is long enough. Without words, without writing, and without books there would be no history, there could be no concept of humanity.” (Hermann Hesse, 1978)

“Who is each one of us, if not a combinatoria of experiences in formation, books we have read... Each life is an encyclopedia, a library.” (Italo Calvino, 2016)

“Reading is cumulative and proceeds with geometric progression: each new reading builds upon what the reader has read before.” (Alberto Manguel, 1996)

Abstract

This paper uses research in the cognitive neurosciences to describe the roles that books play in the complex development of deep reading¹ in children in a digital culture. As digital devices and social media increasingly replace books in our youth’s economy of attention, issues emerge concerning cognitive changes that can accompany digital reading (particularly the use of skimming rather than reading deeply). Of central importance will be the next generation’s ability to develop essential intellectual skills: a quality of attention that reinforces memory, background knowledge, perspective-taking/empathic capacities, and very important critical analytical skills. The connections between and among the development of these skills, the role of books in this development, the discernment of truth value in text, and the ability to maintain a vibrant true democracy are emphasized.

From childhood through all the days of adulthood to this moment, my life has been formed, challenged, expanded, elevated, and in the deepest sense, transformed by books. In *A History of Reading* (1996), one of the most beautiful and influential of books that I have read, Alberto Manguel describes his history as a reader and, in the process, provides one of the most powerful and enduring portraits of the impact of books upon a life. The question for me as a scholar

¹ Zum Begriff des „deep reading“ vergleiche den Beitrag von Carl/Jörgens/Schulze/Rosebrock in dieser Ausgabe von *Le-seräume* (Anm. der Herausgeberin)

of reading and a self-appointed “farmer of children” is whether the next generation will sufficiently experience the life-transforming influences that books had upon Alberto Manguel, myself, and the readers of this journal.

There are multiple reasons that underlie the dismal statistics concerning the levels of proficiency of children around the world, as measured internationally by PISA and in my own country, the United States, by the National Assessment of Academic Progress (NAEP). The results from both PISA and NAEP can be used for good or ill. The last thing we would want teachers in any country is to “teach to the test” and thus run the risk of missing the most important aspect of education: to teach our children to think carefully, critically, and with empathy for others. The reality is many countries, however, is that their teachers often fall into largely binary emphases: that is, on either skills and competencies like decoding, or reading solely for meaning without sufficient skills underlying their reading. Both of these scenarios are necessary but insufficient. We must have children who have both proficient underlying reading skills, and a love for reading that will help develop the more sophisticated, deep reading skills which books promote. For example, only one-third of US children have learned sufficient decoding skills to be able to read fluently enough to utilize the most important processes in deep reading, critical analysis and empathy. These children will largely miss the entire world of books which propel these critical underpinnings to education. The implications of having only one-third of our future citizens able to discern the truth value from what they read, much less understand the perspectives of other’s thoughts and feelings that books reinforce, is a recipe for disaster in democratic societies.

In this slender essay I wish to give a few reflections as a cognitive neuroscientist about the role that books play in the complex development of children, particularly children growing up in a digital culture. My concerns begin with what they might miss as digital devices and social media increasingly replace the role that books can play in a life. My concerns continue with more concrete issues: whether the cognitive changes that can accompany digital reading (particularly in its tendency to encourage skimming rather than reading deeply) will change not only child development, but the next generation’s ability to develop the attention, perspective-taking, and critical analytical skills necessary to maintain a true democracy. The stakes are very high.

There are all too many statistics behind my worries — some of which are to be found in books that I have written (e. g., *Reader, Come Home: The Reading Brain in a Digital World*, 2018). The crux of many facts is this. Children are being given digital devices from the minute they can sit in a high chair without regard to the qualitative and quantitative changes in children’s attention, their increasing needs for continuous sensory stimulation, and the decreasing ability by our youth to comprehend fully what they read (Delgado/Vargas/Ackerman/Salmelón 2018; Mangen/van der Weel 2016; Barzillai/Thomson/Mangen, 2018). Compared to the reading patterns of children before digital devices punctuated their days, today’s children rarely pick up a newspaper or book for pleasure. The “economy of their attention” is directed towards digital media in the time they might, a decade ago, have been immersed in a book or magazine (Twenge/Martin/Spitzberg 2018). Indeed over the last years there is more than a 50 % decline in doing just that in American children.

I do not worry that any of these children will fail to develop the important cognitive and perceptual skills honed by digital devices and necessary for the 21st century. I am buoyed by that. But I worry that along the way to becoming technically competent, they will never know the joy that quickens at the first page of every new book, or the quiet grief felt when a favorite hero or heroine dies in a place they never knew existed. I worry that many of our youth will never have the time to meet all the complicated friends and fiends to be met in books and learn their complex thoughts, when their days at school are filled with tests and exercises on digital screens, and their hours at home are consumed with addictive video games and one-dimensional characters who fight and quest for things of little value. In short, I worry a great deal for the many children today who will never discover the power of books to lift them out of their

lives to discover whole new places, historical epochs, other cultures, and the feelings and thoughts of others they would never otherwise experience.

In the United States, I worry that thousands of children will never possess this reading life not only because of digital influences, but because they never learned to decode competently. Too many of their teachers use methods that uninformed by the science of reading and the structure of the English language. In German-speaking countries, where the rules of the written language are more regular and more easily learned, I worry about all children learning to decode, but less so. For German children who have long learned the basic skills of decoding and are well on their way to becoming proficient reader, I am more concerned about whether they will learn the quiet pleasures of immersion into books. I worry that they will never enter worlds within books created just for them, worlds that build and expand their internal knowledge and with it empathy and discernment.

These concerns are more than a nostalgia for a past reading life. There is physiological reality beneath Calvino's "combinatoria" and the principle of "geometric progression" that Manguel describes. Every new experience, each newly discovered perspective, and all the multifaceted characters we experience in books contribute to the cumulative background knowledge that is the basis for analogical thought, inferential reasoning, and the ability to understand our changing world with empathy, responsibility, and wisdom.

The rich, internal background knowledge we receive through books is, therefore, as essential to the deep reading circuit as salt was to King Lear's pork, and perhaps as little understood. Consider, for example, a simple reality of our intellectual development: Human beings are analogy makers. We make sense of our world by making reference to things we know. Our greatest leaps of imagination and discovery occur when making an analogy between what we know and what we hope to know.

I fear that the formation of background knowledge in our youth and their ability to make these analogies is increasingly, imperceptibly threatened by the great changes in both what they read and how they read. First, without the diverse forms of knowledge conveyed by books, I am concerned that the content of our youth's reading provides insufficient background knowledge for the formation of the deep reading brain circuit of expert readers. Like their parents, with the glut of information available, they go to the familiar and comfortable sources of information that rarely challenge their initial perspectives and thus fail to develop their ability to evaluate good from bad, true from false information. I have only to observe the reading habits in the United States, where many of our citizens are becoming increasingly susceptible and more easily led by sometimes dubious, sometimes false information that many mistake for facts, or worse, grow too inured to care.

Second, and closely related to issues around what we read, there is increasing evidence from eye-movement research that all of us tend to skim, word-spot, and divide our attention frequently, when using digital screen devices. Together with worries about content, this is a recipe for readers of every age allocating less and less time to the more sophisticated processes like critical analysis, inference, and the more time-consuming contemplative functions.

And here we come to the heart of my worries. The reading brain is the product of a cultural invention (reading) and a biological ability to make new networks in the brain for new cognitive functions (like literacy and numeracy). The brain makes a new circuit when it learns to read that begins by learning to connect visual, cognitive, and language processes in decoding print. This feat is still to me, semi-miraculous. But still more extraordinary is when this circuit begins to develop a life of its own, in which connections form with background knowledge and with multiple, sophisticated processes from analogy and perspective-taking to critical analysis, reflection, and insight. The expert reading brain is a true miracle of human achievement with connections across both hemispheres, four lobes in each hemisphere, and all five layers of the brain.

Einstein said that our theories of the world *determine what we see*. So also in reading. What and how we read determine what we see, what we think, and even how we vote. We must have our own expanding wheelhouse of knowledge to see and evaluate new information, across

any medium. For although I worry, perhaps to excess, about the characteristics advantaged by digital reading, it is incumbent upon us all to ensure that both our children and ourselves learn and continue to read deeply regardless of medium.

It is within this overarching context of the development and preservation of the expert reading brain that books – from *Harry Potter* to *Magic Mountain*² – represent the single most important source of our next generation's ability to take on the perspectives and realities of others and make ever more sophisticated inferences and insights over a lifetime. Books provide their readers not only with geometrically growing repositories of knowledge, but also with incalculable capacities at the root of human progress: the ability to understand the multiple perspective of others; to go beyond the constraints of former beliefs to propel discovery and novel thought; and to wrestle not only with the meaning of our life, but also in Hesse's prescient words, with the ever fresh, ever changing 'concept of humanity'.

² Gemeint ist Thomas Manns Roman „Der Zauberberg“ (Anm. der Herausgeberin).

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