

The Book of the Future: Text and Literacy in the Digital Age

For optimists and pessimists alike ... the crucial issue boils down to the brain and how it adapts to screen technology. Familiar as I am with the malleability of the human brain, I predict that spending so much time in cyber-space will inevitably lead to minds very different from any others in human history. And if that sounds over-dramatic, better that than a misplaced complacency. We just cannot afford to assume that our brains are inviolate, and then end up with a world in which our key values are lost for ever. But what are these key values? What do we want future generations to learn? This question could not be more urgent, as it amounts to asking what kind of people we want our grandchildren to be. (Susan Greenfield, *ID: The Quest for Meaning in the 21st Century*, London, 2008, p. 160)

1. Introduction

The history of textual communication has had a major impact on the history of the human species. Two major technological inventions—first of writing, in 4000 BCE, and later of printing, in the fifteenth century—have been responsible for such epochal cultural transformations as the formation of empires from the 4th millennium BCE; the origin of monotheistic religion (religions of The Book) in the last few centuries BCE, and the scientific revolution of the sixteenth and seventeenth centuries.

The central sociocultural role of the book has in the course of the centuries led to what may be termed the ‘Order of the Book’ (Van der Weel). Books, and the infrastructure built around them (from footnotes and bibliographies to bookshops and libraries), represent a particular way of regarding the world. The material form of the book makes it an instrument that naturally favours the creation of lasting records of human thought, and that naturally imposes a hierarchical, orderly, and linear order on those records. Books are self-contained, unchangeable, authoritative—monuments of achievement. By extension, in a literate society like ours, an education system based on books favours a hierarchical, orderly, and linear way of thinking. In this manner the Order of the Book decisively influences—even determines—our way of conceptualising the world.

After writing and printing, today’s digital media are causing the third major technological shift in the way we produce, disseminate and consume text. For centuries, the book has been our primary means of textual communication, but printed text is now being replaced by virtual text, and paper as its substrate by digital reading devices. There is no doubt that the digital developments will have a social impact of at least the same magnitude as these earlier writing technologies, but very likely far greater. *What* we may know is inextricably bound up with *how* we may know.

Although it currently remains unclear what the digital future of the familiar ‘book’ might look like, and how the third textual revolution will affect human brains and culture, already some major shifts are visible. People read fewer books and newspapers, for

example, and there is widespread concern about the decline in reading and literacy especially among younger generations. Their media palette is rapidly changing. Children grow up with more screen and less paper, and educationists are proposing to adopt a media palette closer to students' own. Cognitively, the zapping attitude to media is shortening the attention span.

Of course reading and writing remain central activities also in our digitising times, but at least two developments are militating against the prominence they have enjoyed for centuries. Firstly, in a phenomenon known as convergence, text in a digital environment enters a level playing field which it shares with other digital modalities: still and moving images, and sound (Van der Weel). The competition with the 'hyper-stimulation of the cyber-world' (Greenfield 2008 157), notably through moving images (film, video games) that this engenders is a stiff one. Especially the gaming experience is addictive and a formidable competitor to less immersive screen activities, such as reading and writing (Greenfield 2008). This is not to say that there is not much to learn also from screen experiences (Johnson). However, the emphasis is on different things than we have traditionally valued in the Order of the Book: more on metacognitive skills (evaluating, controlling and changing the learning process itself), and less on abstraction and thinking (Greenfield 2008 158-60). Secondly, there is an observable tendency for people to turn to other modalities to express themselves, such as icons and photos (cf Greenfield 2003), dislodging text from its formerly dominant position.

Moreover, even if the practice of reading and writing were not under threat the move from paper to screen would still represent a larger change than we could readily comprehend. The inscrutableness of the digital text, which includes its lack of tactility and ... (Mangen; ?Wolf) places it also cognitively far apart from paper-based text. The social and economic effects of digitisation on the music industry are nothing compared to the effects of digitising text, if only because our entire educational system is built on text.

2. Technological properties and their effects

What aspects of reading change as we move from a print paradigm to a digital one? What are the social and cognitive effects of the technological differences between print and digital texts? The technological properties of the World Wide Web (being the chief digital textual medium besides, much less prominently, ebooks, SMS, email) can already be seen to have wide-ranging implications, some of which could never have been predicted. It does not take a great deal of imagination to see that many more changes are afoot.

For example, the bi-directional, non-hierarchical, nature of Internet technology is causing the one-way hierarchical paradigm of print to give way to the bi-directional, non-hierarchical paradigm of digital textuality. This levelling, democratising force of the digital medium is likely to help disrupt the traditional educational system based on the hierarchical paradigm of print. If in education a media palette closer to the students' own is adopted, this will place the book and the knowledge transmission paradigm it represents at a extra disadvantage, reinforcing the disruptive power of digital textuality.

Similarly, the ‘instability’ of digital text, which means that text can be instantly changed in form and content, or indeed be wiped in a key stroke, will change—and most likely degrade—the perceived status of text. Clearly, remediating the text of the Bible from paper to screen will fail to invest it with a similarly lapidary authority. Are digital textual ‘monuments’ viable at all, or is the very term a contradiction?

Lack of gatekeeping leads to a surfeit of text, of uneven quality; hyperlinks and the speed of transmission lead to a shortening of the text and to textual fragmentation, which in turn causes loss of narrativity (Greenfield 2008 161ff) and sustained argument. Together these developments increase the interpretative burden for the reader bereft of the familiar guidance of the Order of the Book.

These and other technological properties of digital textuality can potentially affect textual communication in any number of ways beyond the examples listed, with the potential to affect society in many ways. There are many people who suggest that these changes will not necessarily be bad, and in fact many see beneficial effects (Johnson; Surowiecki). Against those who claim positive effects stand those who remain more sceptical [multitasking research]. Whatever the case may be, it is wise to reserve our judgement. These changes will not make the world either a better place or a worse one; but they will make it very *different* (Greenfield 2008).

NB: The argument presented here concentrates on text, for the very good reason that historically text has been the single most important—and discrete—modality for the transmission of knowledge. However, the phenomenon of digital convergence means that we cannot study textual communication in isolation, but must place it within the wider spectrum of modalities and media.

3. The need to formulate a major new research field

It is not just a question of finding out what is going to happen, but how we are going to shape the future. (James Martin, *The Meaning of the Twenty-first Century*)

Dealing with these farreaching consequences of digital textuality will constitute a major challenge to:

- Educational institutions and the teaching and research infrastructure that supports them (including libraries);
- Industries (such as publishers; hardware manufacturers; software manufacturers; providers of infrastructure);
- Governments, for the way they communicate with citizens, but also for policy making, especially in the fields of education and culture. (Indeed, in the final analysis their concern would need to be the continued feasibility of democracy, being based on the communication of shared knowledge.)

However challenging this may be, this makes it urgently necessary to try and gauge the extent and depth of the transformations involved. The rate of change is growing

exponentially.

The issues will affect humanity at large, but especially knowledge-intensive societies. In North America this new research field has already attracted the attention of major funding bodies. To name one recent example, in March 2009 an international team of researchers led by the University of Victoria's Canada Research Chair in Humanities Computing Ray Siemens, announced that it will be studying over the next seven years through their participation in the 'Implementing New Knowledge Environments' (INKE; see www.inke.ca) project what the act of reading will look like in the future and what we can learn from the past to ensure digital applications enhance and expand the reading experience. Funded with nearly \$2.5 million through the Social Sciences and Humanities Research Council (SSHRC) Major Collaborative Research Initiative (MCRI) programme with an additional \$10.4 million funding in institutional and research partner support, Siemens and his team of 35 researchers and 21 partner agencies will develop a better understanding of literacy in the digital age.

Given the ambition of both the Netherlands and Europe to be a 'knowledge society', it is imperative that Dutch/European researchers are enabled to match this ambitious research programme. 'The future of the book and literacy' should be made into a major new research topic in Europe/the Netherlands.

4. Research questions

The following represents just a sample of the many and varied research questions that will need to be posed:

[Reorder according to the production - distribution - consumption matrix]

[Alternative ordering: (1) by stakeholders (identified for my Edinburgh paper); (2) as below (but adding technology itself)]

Authorship issues

- **How will these issues play out depending on the text genre and its particular function?** The format of print has been used for the transmission of an extraordinarily diverse range of cultural expressions. Apart from the function of books as knowledge machines of various kinds (the scholarly monograph; schoolbooks), print has also served for entertainment (e.g., novels, comic strips, magazines), and the distribution of news facts (e.g., newspapers).
- **How will these issues variously affect authors**, depending on genre? For example, how will literary author accrue symbolic capital when publishing through other than conventional channels, such as online? How will textbook authors best address students (from whom they are by definition at least one generation removed), pedagogically, cognitively, socially?
- **What are the effects of digital forms of publishing on the nature of the contents**, for example in educational publishing, scholarly publishing, but also fiction and other book types? More readily than in the case of print, digital textuality will be able to

accommodate different text genres in very different ways.

Publishing issues

- **What economic and legal models will enable us to deal with the new textual forms**, where text and substrate are no longer inseparable? The recent tussle concerning the Amazon Kindle version of George Orwell's *1984* is a timely illustration of the need to think deeply about the consequences of business models that involve 'hiring access' to content and other copyright and DRM issues.
- **What will the book of the future look like in terms of its software and hardware capabilities?** It will be necessary to think about issues of ergonomics and tactility, of interface design and typography, of functionality and navigation, and so on.
- **How will the tensions be resolved between the need for a public domain, and the creator's desire to exploit intellectual property rights?** They are two equally legitimate but very difficult to reconcile demands.

Consumption issues

- **How do libraries deal with the increasing circumvention of their services** by end users, who tend to find what they want through full-text *contents* searches and peer recommendations rather than conventional access facilities.
- **What are the consequences for our reading habits** when text is no longer a medium unto itself, but is just one modality among other modalities, including music, speech, and video?
- **What is the right mix of media to use in primary and secondary schools** in terms of learning efficiency and the reality of students' own media use? Are there cognitive differences between analogue and digital text forms?

Policy issues

- **Should government policies towards the book and its institutions change, and if so, should they merely reflect changes, or (also) instigate them?** Think of reading and literacy promotion, book and library subsidies, VAT regimes, 'fixed book price' and other media regulation policies, etcetera.
- **How can we get a grip on the shifting media use**, for example through monitoring statistics nationally and internationally
- **How do we go about shaping the book of the future?** To what extent is the future of the book a matter of:
 - Conscious imitation in the digital environment of our long-established analogue technologies;
 - Conscious invention of new functionalities;
 - Discovery of the 'natural' functionalities of innate properties of the digital medium (both text and devices)?

If only to avoid building 'horseless carriages', in trying to formulate answers to the many questions we have concerning the book's future, we cannot afford to neglect its past.

5. Towards a European research framework

The nature of research about text and literacy in the digital age is clearly multidisciplinary, the disciplines involved include most centrally book and media studies, library and information studies, sociology (especially science and technology studies), (humanities) computing, brain and cognition, linguistics, though there are also obviously issues requiring legal, technological, and other expertise.

Apart from researchers representing these various disciplines there are many other stakeholders involved, such as

- Authors in any of the categories listed above;
- Educators;
- Organisations representing the infrastructure of the Order of the Book, such as publishers, booksellers, and libraries;
- Hardware manufacturers;
- Software manufacturers;
- Policy makers;
- Funding bodies.

Because digital textuality represents a transformation with such wide-ranging potential effects; because it involves research in so many disciplines; and because there are so many stakeholders from with such obviously diverse interests, it is essential to formulate a common research framework, in order to

- Bring together research under a common umbrella so as to enable the comparison, exchange, and reuse of data and results;
- Allocate funding and other resources rationally.

References

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