

# **Reading in the era of digitisation: An introduction to the special issue**

## **by Miha Kovač and Adriaan van der Weel**

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Digital technologies offer tremendous opportunities with respect to information access, storage and transmission, and digital reading environments offer ways to present information that are difficult or impossible to attain in text on paper. This is significantly changing the ways we read. Digital materials can be adapted to each individual's skill level, enabling flexible learning processes to accommodate the particular needs and developments of each reader. At the same time, empirical research indicates that the affordances of screens may also foster less advantageous reading developments, habits and mind sets.

This warrants balancing the discourse on possibilities and advantages of digital technologies. To this purpose 'Evolution of Reading in the Age of Digitisation' (E-READ) — a research initiative funded by COST (European Cooperation in Science & Technology) as Action IS1404 — has brought together almost 200 scholars and scientists of reading, publishing, and literacy from across Europe. Starting from the assumption that the introduction of digital technologies for reading is not neutral regarding cognition and comprehension, the members of the network joined in an effort to research how readers, and particularly children and young adults, comprehend or remember written text when using print versus digital materials.

The main findings can be summarised in the following manner:

- General comprehension when reading long-form text on a digital screen tends to be either about the same as or inferior to doing the same reading in print;
- More demanding tasks (*e.g.*, requiring greater depth of understanding or reproduction of detail or when longer texts are used) suffer more than leisure tasks (*e.g.*, narrative reading);
- Readers are more likely to be overconfident about their comprehension abilities when reading digitally than when reading print, in particular under time pressure;
- Contrary to expectations about the behaviour of 'digital natives', screen inferiority effects have been increasing rather than decreasing over time, regardless of the age group and regardless of prior experience with digital environments;
- Digital text offers unsurpassed opportunities to tailor text presentation to an individual's needs, which has been found to support struggling readers to develop adequate reading skills;
- Equivalence between the paper and screen mediums — and even an advantage of digital environments — can be achieved, provided conscious engagement in in-depth processing (*e.g.*, writing keywords that summarize the text) is actively promoted.

Research conducted in countries outside of Europe has reported similar results.

As the use of digital materials for both education and personal reading continues to grow, these research findings raise a set of important questions about the future of reading, literacy pedagogy, and the long-standing importance of textual communication. A number of hypotheses to be tested in continuing research may guide us in answering such questions:

- Broad tendencies for screen reading to be more fragmented, less concentrated, and to involve more shallow cognitive processing are being carried over to paper reading habits;

- Our embodied cognition (*i.e.*, that how and what we learn, know, and are capable of is deeply dependent upon features of the entire physical body) contributes significantly to differences between reading on paper and on screen in terms of comprehension and retention. This factor is widely underestimated by readers, educators and even researchers;
- Our susceptibility to fake news, biases and prejudices is being amplified by overconfidence in our digital reading skills.

The findings so far, and the hypotheses underlying our plans for further research, suggest that society is facing major challenges, especially in education. Without in any way wishing to negate or detract from all the undoubted benefits and advantages that digital text has brought, it remains the case that some screen reading effects call for greater understanding of empirical research findings and a well-thought-out decision-making process when choosing to implement screen-based pedagogies:

- Teachers and other educators must be made aware that rapid and indiscriminate swaps of print, paper and pencils for digital technologies in primary education are not neutral and may cause a setback in the development of children's reading comprehension and emerging critical thinking skills;
- Appropriate action is needed to develop better guidelines for the implementation of digital technologies, especially in education, but also in media environments more generally, such as communication of government information;
- Educators, reading experts, psychologists and technologists should partner to develop digital tools (and related software) that incorporate insights from research about the importance of embodied cognition when reading;
- Further research into digital learning materials should involve increased cooperation among technology developers and humanities and social science researchers to help facilitate unbiased and evidence-based public debates on the digital transformation.

The articles in this special issue have been written by members of the E-READ network to discuss in depth a number of findings, hypotheses and recommendations that came out of their research about print versus screen reading.

#### **About the authors**

**Miha Kovač** is professor of publishing studies at the University of Ljubljana.  
E-mail: mihael [dot] kovac [at] ff [dot] uni-lj [dot] si

**Adriaan van der Weel** is Bohn Extraordinary Professor of Book Studies at the University of Leiden.  
E-mail: a [dot] h [dot] van [dot] der [dot] weel [at] hum [dot] leidenuniv [dot] nl

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