COST E-READ Stavanger Declaration Concerning the Future of Reading

We live in an era of ever more swift and pervasive digitisation. Digital technologies offer tremendous opportunities with respect to the production, access, storage and transmission of information, at the same time as they challenge a number of long-established reading practices. Over the last four years a group of almost 200 scholars and scientists of reading, publishing, and literacy from across Europe, have been researching the impact of digitisation on reading practices.

Paper and screens each afford their own types of processing. In today's hybrid reading environment of paper and screens, we will need to find the best ways to utilize the advantages of both paper and digital technologies across age groups and purposes.

Research shows that paper remains the preferred reading medium for longer single texts, especially when reading for deeper comprehension and retention, and that paper best supports long-form reading of informational texts. Reading long-form texts is invaluable for a number of cognitive achievements, such as concentration, vocabulary building and memory. Thus, it is important that we preserve and foster long-form reading as one of a number of reading modes. In addition, as screen use continues to grow, it will be one of the urgent challenges to discover ways in which to facilitate deep reading of long-form texts in a screen environment.

Key findings:

- **Individual differences in skills, abilities, and predispositions form distinct learning profiles that affect children's ability to use and learn from digital versus print sources;**
- **Digital text offers excellent opportunities to tailor text presentation to an individual's preferences and needs. Benefits for comprehension and motivation have been demonstrated where the digital reading environment was carefully designed with the reader in mind;**
- **Digital environments also pose challenges. Readers are more likely to be overconfident about their comprehension abilities when reading digitally than when reading print, in particular when under time pressure, leading to more skimming and less concentration on reading matter;**
- **A meta-study of 54 studies with more than 170.000 participants demonstrates that comprehension of long-form informational text is stronger when reading on paper than on screens, particularly when the reader is under time pressure. No differences were observed on narrative texts;**

- **Contrary to expectations about the behaviour of 'digital natives', such screen inferiority effects compared to paper have increased rather than decreased over time, regardless of age group and of prior experience with digital environments;**

- **Our embodied cognition (i.e. that how and what we learn, know, and can do depends on features of the entire physical body) may contribute to differences between reading on paper and on screen in terms of comprehension and retention. This factor is underestimated by readers, educators and even researchers.**

These findings are consistent with those conducted in countries outside of Europe. In light of these findings, we have formulated the following recommendations:

Recommendations:

- **Systematic and careful empirical investigation into the conditions under which learning and comprehension is enhanced – and of the circumstances under which they are hindered – in both print and digital environments needs to be conducted.**

- **Students should be taught strategies they can use to master deep reading and higher-level reading processes on digital devices. In addition, it remains important that schools and school libraries continue to motivate students to read paper books, and to set time apart for it in the curriculum.**

- **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. Unless accompanied by carefully developed digital learning tools and strategies, they 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. With respect to education this pertains, for example, to the development of empirically validated instruction in digital literacy skills (selecting, navigating, evaluating, and integrating information encountered digitally). Such digital skills will be applicable in many contexts, for example in dealing with government communication and other public information;**

- **Educators, reading experts, psychologists, and technologists should partner to develop digital tools (and related software) that incorporate insights from research about the processing of digital and printed formats, including the role of embodied cognition, for reading practices;**

- **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.**

Questions for future research

As the use of digital materials for both education and personal reading grows, important questions about the future of reading, the pedagogy of literacy, and the long-standing importance of textual communication arise:

- In what reading contexts and for what readers can the use of digital text be most fruitful?
- Conversely, in which domains of learning and literary writing should the medium of paper be encouraged and championed?
- Is the tendency for screen reading to be more fragmented, less concentrated, and to involve more shallow processing turning skimming into the default reading mode that is carried over to paper reading habits?
- Is our susceptibility to fake news, biases and prejudices amplified by overconfidence in our digital reading skills?
- What can be done to encourage deeper processing of texts in general and, in particular, of texts read on screen?

Who are we?

Evolution of Reading in the Age of Digitisation (E-READ) is a European research initiative bringing together almost 200 scholars and scientists of reading, publishing, and literacy from across Europe, in a joint effort to research the impact of digitisation on reading practices. Much of our research has focused on how readers, and particularly children and young adults, comprehend or remember written text when using print versus digital materials. The members and relevant stakeholders of this EU-funded COST research Action met on 3–4 October 2018, in Stavanger, Norway, to discuss the main findings of four years of empirical research and debates (2014 – 2018). The Stavanger Declaration Concerning the Future of Reading represents a summary of this exchange.