Assessing children's reading comprehension on paper and screen: A mode-effect study

# Details

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* Learning
* Internet usage, practices and engagement
* Literacy and skills

## Sample

The school and student samples were drawn by the Directorate of Education, ensuring representation of schools in Norway by stratifying the sample by school-sizes, rural and urban districts, and regions of Norway. Around 1500 students were sampled; cf. the total number of students in 5th grade was c. 61,000 in 2015 (Skoleporten, Utdanningsdirektoratet.no). (10 year olds, n=1139)

## Implications For Parents About

* Parental practices / parental mediation
* Parental digital literacy
* Parenting guidance / support

## Implications For Educators About

* Digital citizenship
* STEM Education
* Professional development

## Implications For Policy Makers About

Stepping up awareness and empowerment

## Implications For Stakeholders About

# Abstract

Recent meta-analyses (Delgado et al., 2018; Kong et al., 2018; Clinton, 2019) show that reading comprehension on paper is better than on screen among (young) adults. Children's screen reading comprehension, however, is underexplored. This article presents an experiment measuring the effect of reading medium on younger (10-year old) readers' comprehension, carried out in Norway in 2015. In a within-subjects design, students (n = 1139) took two comparable versions of a reading comprehension test – one on paper, and another digitally, with test version and order of medium counterbalanced. Probabilistic test theory models (two-parameter logistic (2 PL) and partial credit models) were employed for both versions of the test, allowing direct comparisons of student achievement across media. Results showed that the students in average achieved lower scores on the digital test than on the paper version. Almost a third of the students performed better on the paper test than they did on the computer test, and the negative effect of screen reading was most pronounced among high-performing girls. Scrolling and/or misplaced digital reading habits may be salient factors behind this difference, which sheds further light on children's reading performance and how this may be affected by screen technologies. Implications of these findings for education and for reading assessment are discussed.

# Outcome

Results showed that the students in average achieved lower scores on the digital test than on the paper version. Almost a third of the students performed better on the paper test than they did on the computer test, and the negative effect of screen reading was most pronounced among high-performing girls. Scrolling and/or misplaced digital reading habits may be salient factors behind this difference, which sheds further light on chil- dren’s reading performance and how this may be affected by screen technologies. Implications of these findings for education and for reading assessment are discussed.