

# Screen vs. paper: The effects of text medium on reading comprehension

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As a reading researcher, I spend a lot of time thinking about the factors that affect reading comprehension. As a person who reads, I'm also interested in the factors that affect *my* reading comprehension.

Most of what I read (emails, texts, articles) is presented via a screen, which suits me fine. That said, if the page length gets too hefty, I tend to want a printed version. And while e-books have been around for a while now, I've never felt the same attraction to that kind of text medium as I've felt towards real, 'proper' books. This has led me to wonder whether there is any actual difference in reading performance that is attributable to text medium.

## Screen vs. paper

Attitude-wise, *the majority of people also prefer* printed books over digital or e-books. For me, part of this is due to the feeling of owning books – especially when I've bought them while on a holiday. They are artefacts. Mementos. It makes me happy to look up from my desk and lovingly peruse a shelf of old P.G. Wodehouse books that were purchased from various second-hand stores.

But, beyond having them as keepsakes, printed books have physical qualities that somehow make them superior to their digital counterparts. Each one has a weight and thickness that represent how long you can be expected to spend reading it, and each page-turn therefore signifies tangible, observable, concrete progress.

In contrast, navigating through a digital text involves scrolling or tapping; you are still progressing from the start to the end in an abstract kind of way, but *it's more difficult to place* any one passage in the context of the entire text, *or to backtrack* and read the same passage again to solidify its meaning.

So, does the absence of a tactile reading experience translate to an actual reduction in reading comprehension performance?

The answer is yes, though with caveats. According to Garland and Noyes (2004), *there is little difference* in immediate recall of information when adult readers are presented with exactly the same material via print versus screen. However, in their study, the quality of comprehension knowledge differed, depending on the medium. Information presented via print was better assimilated into long-term memory. It was known, rather than remembered.

Children, too – our so-called digital natives – also seem to be *slower* or *less accurate* to comprehend long, linearly structured text via a screen, rather than in print.

As mentioned, this is partly due to difficulties with navigating screen-based text. In addition, the light and angle of computer monitors mean *there are higher optical demands* associated with screen-reading, which means the reader is more likely to experience eye fatigue.



### Shallow vs. deep reading

There is also the question of [whether our general reading behaviours](#) have been affected by exposure to more screen-based text over time. Have we, as a society, unlearned the skill of deep reading? According to [Tanner \(2014\)](#),

*It requires patience to learn from a text, patience to follow an author's logic through unfamiliar territory, and patience to constantly review new concepts to confirm one's understanding. A computer might not be conducive to such effortful deliberation. (p. 6)*

Prominent reading researcher [Professor Maryanne Wolf](#) also has concerns about the broader implications of becoming a population of superficial readers:

*If a growing number of our best and brightest students of literature have begun to shun some of the finest works in our past literacy legacy because the texts are too long, and because the students no longer possess the perseverance to 'suffer through' them, who will we, the rest of us become? Who will we be if huge portions of our past literacy traditions become less incorporated in the corpus of what the educated person reads and*

*writes and is taught? ... Our ability to understand ever more sophisticated text furthers our ability to comprehend the varied, often complex, and cognitively demanding issues that are at the heart of human character and indeed of a democratic society. (p. 150)*

I'm not sure whether I hold such a pessimistic view of the future state of our screen-tastic world, but maybe that's because – as a borderline-millennial – digital media is too much a part of my DNA for me to have an unbiased opinion.

If I'm honest, I do think I'm an impatient reader. I would much rather have already read most things than do the actual reading. And that tendency to absorb text shallowly is a pretty weighty weakness that, I would imagine, is shared with a lot of other people.

But like it or not, screens aren't going anywhere, and that's not an entirely bad thing. In terms of reading comprehension, screens allow for factors like font size, lighting contrast and spacing to be adjusted according to the readers' preferences, which [may be of particular benefit to older adults](#).

There's also no denying the accessibility of digital media. What we got in exchange for our patience towards long written texts is a vast heap of online content. Is the trade-off worth it? Twenty minutes on Twitter will convince you that it isn't. But then again, you probably found this article via a screen, so it can't be all bad.

### Convenience vs. concentration

When it comes down to it, reading comprehension is not a straightforward metric. At a basic level, [it certainly relies](#) on the reader's word recognition and language comprehension, and for that reason, these skills need to be incorporated into children's literacy instruction.

As we've seen, presentation medium also plays a role in reading comprehension – at least when the written text is long and linearly structured. In such cases, paper seems to be the better choice.

On the other hand, screens win on convenience of access, and they can be useful when the goal is to comprehend bite-sized and/or time-sensitive text correspondences.

On the other hand still, audiobooks are useful when the goal is comprehending text while cleaning the fridge. And e-readers are useful when the goal is comprehending text while staying minimalist.

As a species, we have prioritised convenient access to a range of different text format options. Research has yet to show conclusively whether, by doing so, we're forfeiting the ability to gradually and concentratedly build knowledge by engaging with written text.

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