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CXO INSIGHTS

Pixels & Papyrus: Constantly Seeking Balance in a Digital World

By Philippe Ernewein, Director of Education, Denver Academy



The screen keeps creeping into my world of reading and it has made me start to wonder: How might reading on screen impact my comprehension of what I'm reading?

Like many people today, for a variety of reasons, I often have to read text on screens. Along with the endless torrent of emails and media that populates the screens in my life, I have also read a few e-books. The quality of that electronic reading experience did not come close to the enjoyment I get from reading a paperbound book.

My gut response to this question was, "Absolutely, it must be!" The experience of reading on screen is ripe with opportunities for distraction and diversion that takes my attention away from the reading and therefore impacting my understanding. But maybe that's just me; bright shiny objects sometimes do grab hold of my attention. Last week a wolf spider held my attention for about twenty minutes, luckily it was during lunchtime.

Devices like iPad, Kindle and Nook have dramatically changed the way many of us are reading text. In 2011, the online retailer Amazon announced that electronic book sales surpassed print book sales for the first time in history (bloomberg.com).

Much of the research I encountered while seeking an answer to my question focused on the specific electronic medium or how reading on the screen might impact the amount of time a reader is reading. I am not interested in those categories. I've been specifically wondering if the screen is negatively impacting my comprehension of what I am reading. Is reading from the screen impacting what I remember, how I analyze or how deeply I read?

My belief that the screen must be negatively impacting my comprehension seems to have its origins in some old research. "People read more slowly on screen, by as much as 20 – 30 percent. Fifteen or 20 years ago, electronic reading also impaired comprehension compared to paper," Sandra Aamodt, former editor in chief of Nature Neuroscience, wrote in a New York Time Blog. "But those differences have faded in recent studies."

So what about these recent studies? A study published in Educational Technology & Society in 2013, "Using E-readers and Internet Resources to Support Comprehension," concluded:

The results support the hypothesis that children accessed

reading support resources (e.g., a dictionary) more frequently while using an electronic reader. However, the results do not reflect the hypothesis that an e-reading method increases children's reading comprehension.

This same report also stated, "While there is no improvement in comprehension scores, it is important to note that there is no reduction in scores."

OK, that makes it seem like a zero sum deal. Yet, there is still a faint voice in my mind that is asking about the quality of the reading experience I have when I compare paper to pixel, that the screen is somehow investing my thinking brain less. As if the perceived fleeting nature of the screen could not possibly compete with the tangible, and again perceived, momentary permanence of a book.

Another report, "Impact of presentation mode on recall of written text and numerical information: hard copy versus electronic," found, "Results revealed no significant difference in the impact of hard copy versus electronic copy on recall performance."

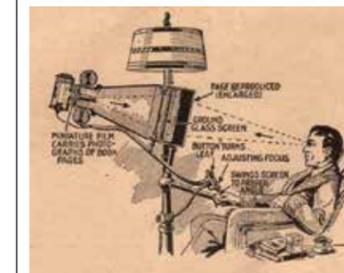
As we teach the next generation we have a responsibility to be thoughtful about what we introduce and take-away from our learning environments

The best answer, or at least the one that minimized my worries the most, was the following statement from the same report:

Also, from an applied standpoint, the findings of no difference between hard copy and electronic modes should be reassuring to individuals who may fear that the ever-increasing reliance on electronic dissemination of material might have a detrimental impact on memory performance. Further, the finding of no difference between hard copy and electronic modes lends support to those who encourage environmental sustainability efforts through less reliance on hard copy dissemination of information.

Despite these findings, I am still worried. My qualitative, narrative evidence (OK, bias) is that I prefer a book over a screen any day of the week. It made me wonder also if there had been other challenges to the traditional book form.

The Smithsonian Blog answered that question with a featured article called, "The iPad of 1935." The device was advertised as a photographic book. An image was projected on a screen for reading. It was featured in Everyday Science and Mechanics with the byline: "It is practically automatic."



I prefer reading words in a good, old-fashioned book. Like Maryanne Wolf, Developmental Psychologist and Cognitive Scientist at Tufts University, has stated, "There is a physicality in reading. Maybe, even more than we want to think about as we lurch into digital reading—as we move forward perhaps with too little reflection."

When I read novels, I like a book in my hands with a bookmark nearby.

When I read research reports, I like to have paper in my hands and a highlighter and pen handy.

This is my strategy. I do it because it helps me remember and capture what I think is important. It creates opportunities for me to further analyze, apply, synthesize and wonder about what I've read.

But this isn't always true. If I need to read directions, a quick fifty word abstract or news story, I'm fine with the screen. I might even say, in those moments of reading, I prefer the screen.

The biggest obstacle I've encountered in interacting with reading text on a

screen is the visual layout. There are aspects of the format of texts that help me understand what I'm reading that are often lost in digital format. Basically I'm thinking here about the visual aspect of the layout.

I can easily navigate a textbook, report, book of poems or novel. I am familiar with the shape of the entire text and how the parts are generally organized.

Dr. Mark Changizi, an evolutionary neurobiologist, argues that "there are very few visual landmarks compared with paper books or magazines, which makes them harder to navigate."

Yes, exactly! I'm sometimes lost in a document. It feels like I'm in a maze with no sense of direction. My internal 3D movie projector fails, I get clumsy inside a PDF about the latest educational best practice, I can't put my pen or highlighter on the page. And then I see the wolf spider again. OK, maybe it's just me.

I am convinced however that with practice I will be able to improve my navigational skills on the screen, familiarize myself with the landmarks and chart a new course. I also know that this is not an either or scenario; meaning, it's not just about paper or screen. There must be a balance.

As educators we need to be familiar with our students' learning profile, invite them into the dialogue about how they will read and comprehend best.

And I am also convinced, despite what the best science fiction literature reports the future will be like, there will continue to be books. As a child of the 1970s, I remember I was promised flying cars.

As we teach the next generation we have a responsibility to be thoughtful about what we introduce and take-away from our learning environments. I asked a member of this next generation of leaders, creators, readers and thinkers, my eight year old daughter, which she prefers: screen or book. She said, "If I had no other choice, I'd read a screen, but really screens hurt my eyes and books don't. Also, books are easier to carry." **ET**

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