




# Navigating legal texts in a digital age

## *The digital world is here to stay, but for deep reading and better comprehension, print it out*

**By Dan Pleasant**

There's no denying that the legal profession has undergone a revolution in the last quarter-century. Walls of books have been replaced by computer screens linked to enormous databases. Trips to the local law library are out; long afternoons spent staring at pixels are in. Document review doesn't mean digging through boxes of paper, but poring over PDFs. The paperless office moves closer to reality every day.

But progress has a price. While no one longs for the "good old days" of the Decennial Digests and Shepardizing cases – I mean really Shepardizing them, with the red and yellow updates – I do miss the thrill of the serendipitous discovery when doing library research, when you find the key to a case by accident, even though you were there researching a completely different matter. That just doesn't happen while doing research at the computer.

But more troubling is the effect this digital overload has on concentration and comprehension. I know from my own experience, and from the reports of colleagues, that long documents, be they judicial opinions, medical records, or legal briefs, are more difficult to process when they appear only as images on my computer screen rather than in their analog equivalent, good old-fashioned paper.

I'm not the only one to notice this phenomenon. In recent years, there has been a spate of articles and studies discussing the digital versus paper dichotomy and its impact on readers. While most of this research focuses on educational contexts, the observations and findings are applicable to professional readers and writers, such as lawyers, judges, and others involved in the legal process, like paralegals, jurors, and mediators.

### The closing comprehension gap

One question that inevitably arises is whether reading comprehension is degraded when users are reading screens rather than paper. In the early days of the digital revolution, the answer seemed clear. In 1992, a meta-analysis reviewed numerous studies conducted in the late 1980s and early 1990's and concluded that people read slower, less accurately and less comprehensively on screens than on paper.[1] Most results indicated that reading from screens caused a 20 to 30% drop in reading comprehension.

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But display technology improved and became more ubiquitous, and people became used to getting more of their information from digital sources. In response, the comprehension gap began to decrease. Thus, a more recent 2008 study[2] suggests that results are inconclusive in determining a preference for print or screens in retention and that there is only a slight majority of results that support the earlier findings showing a comprehension gap. Other studies published have produced inconsistent results, with many finding few significant comprehension differences between reading on a screen or on paper.

Maria Konnikova reported on this narrowing comprehension gap in the *New Yorker* two years ago:

> Indeed, some data suggest that, *in certain environments and on certain types of tasks*, we can read equally well in any format. As far back as 1988, the University College of Swansea psychologists David Oborne and Doreen Holton compared text comprehension for reading on different screens and paper formats (dark characters on a light background, or light characters on a dark background), and found no differences in speed and comprehension between the four conditions. Their subjects, of course, didn't have the Internet to distract them. In 2011, Annette Taylor, a psychologist at the University of San Diego, similarly found that students performed equally well on a twenty-question multiple-choice comprehension test whether they had read a chapter on-screen or on paper. Given a second test one week later, the two groups' performances were still indistinguishable. And it's not just reading. Last year [2013], Sigal Eden and Yoram Eshet-Alkalai found no difference in accuracy between students who edited a six-hundred-word paper on the screen and those who worked on paper. Those who edited on-screen did so faster, but their performance didn't suffer.[3]

So is the comprehension gap a thing of the past? Not necessarily. The key qualifiers above, "in certain environments and on certain types of tasks," don't always apply in the law office.

## Deep reading in a digital world

Most of the studies discussed above focused on relatively short written passages, because short passages make for easier testing in the laboratory. But in the real world, we are called upon daily to analyze much longer blocks of text, like judicial opinions and legal briefs. Comprehending such sophisticated material requires that the reader be able to do more than regurgitate it; the reader must understand the underlying thoughts and ideas. Getting the gist of the material is not enough. Maryanne Wolf, author of *Proust and the Squid*, calls this more intensive process "deep reading – a bridge to thought. It's that process that I think is the real endangered aspect of reading."[4]

People consistently say that when they really want to dive into a text, they read it on paper. Many people who have grown up reading printed material feel that their reading is more effective if they read from paper rather than from a screen. When describing why they feel this way, they refer not just to the visual sense, but also the way paper feels and is manipulated, which supports their comprehension. As we all remember from our school days, the ability to highlight or jot notes is aid to understanding. Similarly, tactile feedback, like being able to judge where they are in a document based on the number of pages left to go, is important.[5]

And at least a few studies suggest that by limiting the way people navigate texts, screens impair comprehension. In a 2013 study, Norwegian researchers asked students of similar reading ability to study one narrative and one expository text, each about 1,500 words in length. Half the students read the texts on paper and half read them in pdf files on computers. Afterward, students completed reading-comprehension tests consisting of multiple-choice and short-answer questions, during which they had access to the texts. Students who read texts in print scored significantly better on the tests than students who read the texts digitally.[6]

Ferris Jabr reported in *Scientific American* on the researchers' conclusions about the physical differences between the two types of reading that led to the disparity:

> Based on observations during the study, [lead researcher Anne] Mangen thinks that students reading pdf files had a more difficult time finding particular information when referencing the texts. Volunteers on computers could only scroll or click through the pdfs one section at a time, whereas students reading on paper could hold the text in its entirety in their hands and quickly switch between different pages. Because of their easy navigability, paper books and documents may be better suited to absorption in a text. "The ease with which you can find out the beginning, end and everything in between and the constant connection to your path, your progress in the text, might be some way of making it less taxing cognitively, so you have more free capacity for comprehension, Mangen says.[7]

"Reading is human-technology interaction," says Mangen. "Perhaps the tactility and physical permanence of paper yields a different cognitive and emotional experience." This is especially true, she says, for "reading that can't be done in snippets, scanning here and there, but requires sustained attention."[8]

Even today's students, who have grown up using technology on a daily basis, seem to have a preference for print when it comes to deep reading. A 2008 survey of millennials (people born between 1980 and the early 2000's) concluded that, "when it comes to reading a book, even they prefer good, old-fashioned print." Similarly, a 2003 study found that nearly 80 percent of surveyed

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students preferred to read text on paper as opposed to on a screen in order to "understand it with clarity." And a 2011 study concluded that a majority of tertiary students will begin their research using screen-based text (benefiting from advanced search functions and the like). However, upon choosing the appropriate text, students often print it to be able to better digest the text.[9]

That sounds familiar. I know that my own legal research process, and that of many of my colleagues, is exactly the same: use Westlaw to find relevant cases and materials, but once found, print them out for study. I find it's much easier to keep track of my research when I have a printed-out set of cases that I have personally highlighted and annotated, notwithstanding the myriad of digital organizational tools that are now available.

## To save your eyes, kill some trees

Reading from screens may create more stress for the brain than reading from paper and study participants have grown tired more rapidly when reading from screens.[10] While these studies have not identified the cause of this stress, researchers have concluded that when reading for long periods of time, readers can achieve much greater stamina by reading paper documents.

Other researchers have suggested that people comprehend less when they read on a screen because screen-based reading is more physically and mentally taxing than reading on paper. Jabr reports that our eyes are particularly susceptible:

> Computer screens, smartphones and tablets like the iPad shine light directly into people's faces. Depending on the model of the device, glare, pixilation and flickers can also tire the eyes. LCDs are certainly gentler on eyes than their predecessor, cathode-ray tubes (CRT), but prolonged reading on glossy self-illuminated screens can cause eyestrain, headaches and blurred vision. Such symptoms are so common among people who read on screens – affecting around 70 percent of people who work long hours in front of computers – that the American Optometric Association officially recognizes computer vision syndrome.[11]

## Ctrl-P is your friend

The digital world is not going away – thankfully. But while none of us want to return to a world without Westlaw and Google, it pays to be aware of the pitfalls overreliance on digital sources can foster. By all means, feel free to browse and scan to your heart's content. But when it comes time for deep reading, print it out. And reach for your favorite highlighter.


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## Endnotes

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[11] Jabr

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