

Of Paper and Pixels: Reading in Flux

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Introduction

How will we be reading one hundred years from now, and why? This is the question that this paper seeks to explore. It is pertinent to reflect on this now, because today, anno 2020, we are in a liminal reading condition, positioned between paper and pixels; half digital, half analogue; half books, half screens. This is the situation today, but in order to fully understand where reading is now, and where it is plausibly going in the coming years, we first need to reflect on where it has come from.

The Reading Past

So how did we start reading, and when, and where, and how, and why? It is almost certain that reading evolved for human economic reasons in the ancient Sumerian civilization in Mesopotamia some 5,000 years ago. At the marketplaces, people would sell things to each other. Sometimes swaps would take place or people would owe each other and would compensate each other at a later date. This all had to be memorized, that is, until someone came up with the bright idea of making small markings in clay tablets. Then when the clay hardened it would remind that person of what they had exchanged with whom and who owed them, and voilà, as if by magic, you have the birth of writing and, by default, reading. At its essence, writing and reading are simply a means of what scholars in the sciences and social sciences today would term 'cognitive offload', through the processes of coding and decoding. Admittedly, this is not a very intellectual or romantic beginning for what would go on to become arguably one of the most cerebral and idealistic activities a human being could engage in.

These simple marks on clay gradually evolved from basic hieroglyph forms to a style of writing called cuneiform, which consisted of small triangular, wedge-shaped marks (from the Latin *cuneus*, ‘wedge’). A further evolution took writing into the domain of ideograms, where symbols are used to represent ideas. This is where English and other languages are today. Of course, writing has evolved differently in other parts of the world, not least in China and Japan, where the characters that are used are essentially logograms.

Over thousands of years, across many ancient civilizations, humans moved from writing on clay tablets and carving in stone to writing on papyrus and later on velum/parchment. Reading evolved too, as originally it was only done aloud. Yes, those great ancient libraries in places like Alexandria and Pergamum would have had no ‘quiet please’ or ‘silence’ signs, like you might find in some of the world’s leading academic libraries of today, like the Bodleian in Oxford. Rather, they would have been cacophonies of hullabaloo and noise, as scholars read aloud from scrolls. Silent reading, something we take for granted today, only became dominant in the later Roman period when accountants and civil servants found that they could audit and process texts much more quickly if they read silently, rather than aloud. Traces of our reading aloud heritage can still be seen today in the reading of religious texts in faiths such as Judaism and Islam.

In time, reading from scrolls of papyrus, and later velum, also changed ever more to the medium of bound books. Many Western books were of an early Christian nature, written and illuminated by monks in monasteries. These books were all hardbacks and ranged from the enormous and heavy to the tiny and light. They were often only found in private collections: in churches, monasteries, universities, and in the private houses of wealthy individuals. The invention of the printing press by Gutenberg in 1440 marks the start of a shift in book production and indeed book culture from

the human to the mechanical and from objects possessed by the few, to objects possessed by the 'many'. Well, 'many' is perhaps an exaggeration given the low levels of literacy at the time, but certainly many more than heretofore had been the case. A good example of this is the 17th century diarist, Samuel Pepys. Pepys was not poor, rather, he was upper-middle class. He was an administrator for the English navy, based in London, and later a Member of Parliament. In his journal, he writes of the books he sought, purchased, read, and added to his library at home. When he died, he bequeathed his entire collection to his former college, Magdalene, at Cambridge, and since 1724 his books have been on display in a purpose-built room.

This process of printing, collecting, and distributing books to include an ever-expanding circle of readers in Western society sped up during the European Enlightenment period. It perhaps found its zenith after the advent of the paperback novel (also known as the softback/softcover) in the late 19th century. The paperback, so central to our reading habits today, was a mere chance discovery. Someone hit on the bright idea of selling cheaper, lighter books at railway stations so that commuters might have something to read during their journeys. In the age of Pepys in the 17th century, and right up to the 19th century, you had something called the 'penny dreadfuls' (Pepys collected them), but these were just cheap pamphlets/booklets in the beginning, not paperbacks: they were almost always short stories of dubious repute, as the name suggests. Today in 2020, it can be said that the paperback still reigns supreme in the analogue division of books, but it now has a peer (or is it a challenger?): the digital e-book.

The Reading Present

The impending 'death of the paper book' was first muted in the late 1990s with the mass advent of digital technologies. But it didn't die.

Things did indeed look grim around 2007 when Amazon launched its Kindle e-reader and digital sales were starting to outstrip paper sales but it somehow clung on and is even showing signs of recovery. Bookshops, and especially independent bookshops, have reported increased sales in the past three years.¹ Ironically, it is the e-reader that appears to be in rapid decline, despite its excellent e-ink technology. This invention limits eye fatigue and has the same impact on the human eye as a regular paper book does. This e-ink invention is in stark contrast to the ubiquitous LCD screens that are found on desktops, laptops, tablets, and mobile phones. Such screens have a much greater impact on the eye, causing fatigue and strain.² Upon reflection, it can be said that when the e-reader came out, it only seemed to appeal to a narrow group of middle-aged educated people. Young people and students largely eschewed it in favour of their other digital devices. It is fair to say that the only time most students consider borrowing their parent's e-reader, or purchasing one themselves, is if they are going on their summer vacation or taking a gap year. After all, who would want to carry a backpack full of heavy books when you can cram a borrowed e-reader full of cheap title downloads before you leave home?

If digital reading has found a new hardware home, then it is plausibly on the mobile phone. This poses a much greater threat to books than the e-reader did. About five years ago, *The Washington Post* and *New York Times* were reporting that young urban professionals appeared to be reading novels and some non-fiction books across devices.³ In this scenario, a person might start reading a novel in book format at the breakfast table at home, hop on the subway to work, and continue reading the same novel on their mobile phone until

¹ Alison Flood, 'People are so happy we exist: Indie bookshops grow despite retail slump', *The Guardian*, January 10, 2020.

² See Benedetto et al., 2013; Jeong, 2012; and Siegenthaler et al., 2012.

³ A. Alter, 'The Plot Twist: E-Book Sales Slip, and Print Is Far From Dead', *The New York Times*, September 22, 2015; and J. Maloney, 'The rise of phone reading', *The Wall Street Journal*, August 14, 2015.

they reached work. These reading habits would then be repeated on the way home. The question is, is this toggling across devices mainstream and if so, is it here to stay? Or is it maybe even a sign that we are on our way to switching to digital? A study conducted shortly afterwards suggested that this behaviour was not being reproduced by students on campuses, who were appearing to remain loyal to paper and books.⁴

Students were also largely shunning reading on mobile devices, despite screens having become larger in the past few years in order to facilitate more conducive interactions across various digital viewing activities. Indeed, there are even emerging technologies that include bendable/foldable devices. Of course, the primary drive behind this technology is not to create a better paperback novel reading experience, but rather to prevent screens from shattering when they are dropped. A further extension of this technology is the Samsung Galaxy Fold, a smart phone launched in the summer of 2019 that becomes a tablet when unfolded. When launched it was predictably beset with design faults, especially pertaining to the hinge and the thickness of the glass, but it was quickly superseded in February 2020 by the Samsung Galaxy Z Flip, with ultra-thin folding glass and a hideaway hinge. When folded, it is much smaller than regular smartphones and easily fits into a user's pocket. Indeed, many of the tactile reasons avid readers give for not wanting to switch from analogue to digital reading is that they are too accustomed to bending and folding their paperbacks while reading curled up on their bed or in their favourite armchair. Advancing technology in bendable screens on mobile devices is arguably well on its way to making this objection obsolete.

Such haptic and ergonomic reasons are often given in qualitative feedback as to why readers of literary novels still shun the device

⁴ See Burke and Bon, 'Locations and Means', 205-232.

in favour of the book.⁵ Another is a locative reason: When people read in the park or at the beach or just at home lying in their beds at night before sleeping, they appear to prefer to do so with a ‘natural’ product (paper), as opposed to a synthetic one (plastic and glass). Olfactory reasons also play a role in this choice, namely, many readers tend to delight in the smell of books. This can be new books (the smell of print and ink, which is often toxic) or old books, that almond aroma which, if the truth be told, is just rotting paper and decomposing glue, often made from the bones of farm animals and horses’ hooves. Typically, the market provides for the needs of the consumer and for those readers who use e-readers still; they can buy sprays/aerosols which can be applied to the plastic and glass of digital devices that will make them smell like old books.

Mark Twain once wrote that news of his death had been greatly exaggerated, and so it is with the reported death of the book. Books are proving to be remarkably resilient. We are, it seems, in a period of reading flux between paper and pixels. Having said this, though, we must realize that we are still only at the very beginning of the digital revolution in reading. It is not the end. It is not even the beginning of the end. In fact, it is not even the end of the beginning; it’s just ‘the beginning’. In spite of its current good health, sustained by the readers of present, like you and me, the book could quite easily be gone twenty or thirty years from now, when readers, not yet born, may spurn paper for the only thing they have ever known – pixels. We speak about ‘digital natives’ and ‘digital immigrants’ and say that anyone born after 1980 is a ‘native’. This, to my mind, is nonsensical. The true digital natives have yet to be born and they will emerge in twenty or thirty years from now. The generation born between 1980 and 2040 may, in time, come to be known as the ‘digital tourists’; not natives and not immigrants, but something in between. Not too dissimilar to the people of late eighteenth-century

⁵ See Burke, *Literary Reading, Cognition and Emotion*; and Burke and Bon, ‘Locations and Means’, 205-232.

Britain, who, between approximately 1750 and 1800, had one foot still in the old agrarian-rural world and one foot in the new industrial-urban age.

The Reading Future

The plausible imminent demise of the paper book and the switch to reading digitally also throws up another important question: How long will human beings actually still be reading, and by default, writing too? Let me start this discussion with an anecdote. In 2018, I was teaching a short course to a small group of master's honours students in my university in Utrecht in the Netherlands. Approximately half the students were arts/humanities majors and half were science/technology majors. I split them into two groups and posed them the same question. The question was: 'How will we be reading 100 years from now, and why?' The arts/humanities students discussed the question among themselves and then explained to me that the reading landscape a hundred years from now would not be too dissimilar from what it is like today. We would still have a split between paper and pixels. There would be more digital reading but books would still be going very strong. Being a humanist scholar myself, this answer appealed to my cultural sensibilities on both a conscious and non-conscious level. Then I asked the science/technology honours students the same question. They answered immediately, almost with one voice, saying that 'one hundred years from now we will no longer be reading', adding, 'nor will we be writing'. They followed up by saying, 'Of course, there will be enthusiasts here and there who still read and write but it will be a bit like people today who have hobbies like knitting or embroidery'. One student added that maybe very traditional organisations like the church may still choose to read in public for performative persuasive reasons.

This answer shocked me and I went into automatic humanist denial. But shortly afterwards I started to reflect on it. I realised

that just forty years ago there was no real internet; thirty years ago hardly anyone had an email address; twenty years ago many of the social media platforms that are taken for granted today – Facebook, Twitter, Instagram, and many others – didn't exist. Back in 1990, just thirty years ago, who could have imagined what reading and our digital lives could have looked like today? That was only thirty years ago and this prediction on reading that I put to my honours students was asking them to consider one hundred years from now. I drew two conclusions. The first was that the chance of things being more or less the same in one hundred years' time, as the arts/humanities students had predicted, was almost zero, barring some hugely destructive event like a thermo-nuclear world war, global pestilence, or a massive climate event that would stop the digital age in its tracks for a prolonged period. The second conclusion that I drew was that if we were unable to predict just how far digital technologies have come in the last thirty or forty years, how on earth can we predict with any certainty where these technologies might be in one hundred years' time? Indeed, might a hundred years in the digital age be more akin to two thousand years in the analogue age? In short, technological change is so fast moving that it is challenging to envision exactly what reading and writing will look like in 2120. However, we can perhaps creatively 'imagine' where it might go to, were it to disappear. The answer to the immediate future may very well lay in the past and in that key aspect of what makes us human: the rhetorical art of storytelling. Indeed, the near-future of reading could be auditory again and the near-future of writing once again oral in nature. This is because storytelling transcends the hardware and the skill of reading and writing. In effect, storytelling is a meta-level phenomenon of reading and writing.

We know the following: that technological innovation in a number of fields is moving toward a fuller integration of voice- and face-recognition solutions. The former of these, speech recognition, has been around since the 1970s, having been developed from the fields

of linguistics, computer science, and artificial intelligence. Initially developed for people with manual disabilities, the technology has spread to numerous domains from healthcare to the military. Initially, the software had to be trained to learn the nature and idiosyncrasies of a given speaker's voice. Early programmes also had many errors in the output that needed repair. In the past five years, this technology has made a huge leap forward. Programmes can now become accustomed to a given voice almost immediately and there is a very low level of errors in the written output.

A case in point is in in-car sat-navigation systems, whereby manual input telling the computer what to do and where to go is quickly becoming obsolete in favour of voice input for the same functions. Another case is a product like Google smart speakers, whereby questions and commands can be posed orally at home, ranging from 'what time does my local supermarket close?' to 'is there a traffic jam on the Amsterdam ring road?' and the programme will answer you immediately drawing on its vast database of up-to-date knowledge. Writing, it would seem, and any manual creation of symbols to convey meaning, may be on its way out after 5,000 years: but what of its counterpart, reading?

We know that fewer and fewer younger people are reading to the extent that the generation before them did. A recent article in a leading Dutch newspaper reported that nowhere in broadly literate countries is reading for pleasure, digitally or otherwise, so low as it is in the Netherlands, where almost half of all fifteen year olds consider reading a literal waste of time.⁶ Many other countries fared not much better than the Netherlands. We also know that the attention spans of young people are falling and that this is due to a significant extent to the amount of digital face-time they are

⁶ See Mirjam Remnie and Patricia Veldhuis, 'Aap Noot Mis', *NRC*, February 1, 2020, 22-4, referring to the latest PISA study, a study conducted every three years among 600,000 school children across 77 countries.

engaging in in different domains, from reading to watching videos to gaming.

These days fewer parents are reading aloud to their younger children, and if they do they now have a number of alternative digital options. For example, busy parents can now record bedtime stories using the aforementioned Google smart speakers. A child need only switch on their tablet in bed and say, 'Hey Google, talk to My Storytime', and lo and behold the story starts. It will not be long before the computer can make the parent in this procedure obsolete by imitating the voice of the mother or father. In fact, the software is so fast at learning that parents are undoubtedly already redundant from a technological perspective. It is only the emotional idea of taking them out of the loop that is 'not done' that stops it being implemented right away.

Another development that needs our consideration is the audiobook developed many years ago and thought more or less redundant just twenty years ago. I have news: the audiobook is back, stronger than ever. A recent newspaper article in *The Times* shares that a Deloitte report, which includes figures from the 2019 annual technology and media trend predictions, has forecasted that the global audiobook market will grow by 25% to almost £4 billion in 2020. Crucially, in the United States, the world's largest market, audiobook revenues are on track to pass e-books by 2023. This is significant. It means that eyes may be replaced by ears in the domain of 'reading' much sooner than any of us dare imagine. The article describes how a better quality of sound in headphones, including the evolution of wifi, comfortable 'earbuds', and Apple's 'AirPods', is driving this change, along with the increasing number of celebrity readers who record books and authors who voice their own books.⁷

⁷ Matthew Moore, 'Audiobook sales forecast to overtake e-books with revenue rising by 30 per cent', *The Times*, December 2, 2019.

An unmentioned, but to my mind significant, driver of this change must also be the cognitive ease that listening to a book offers compared to the cognitive effort that reading a book demands. Is the future of reading, listening? Well, quite plausibly, yes it is. This is the near future, but what about the distant future? What will the act of reading look like beyond 100 years, say, 500 or even 1,000 years from now? This is the realm of science fiction and is beyond the scope of this paper. Maybe virtual reality will lead and will be superseded by neural implants where stories could be directly downloaded thus bypassing the visual system. This is not as far-fetched as it may seem. Only last year Elon Musk announced that he was working on a brain-machine interface start-up called Neuralink involving wireless implantable devices that can ostensibly ‘read the minds of others’.⁸ This may very well be what the future will look like, but, in drawing this paper to a close, I would like us to reflect a little more deeply on the challenges of our reading present, brought about by the *in medias res* situation that reading finds itself in.

The Challenges of the Reading Present

Recent eye-tracking research into reading has shown that when we read on screens we skip through the text, zig-zagging our way from top to bottom in a kind of speed-reading mode. This is unlike reading from books (on paper) where readers tend to progress along the lines albeit with some regressions and fixations. Recent experiments have shown that reading behaviour in the digital condition can affect and influence reading behaviour in the book/paper condition; in short, that skipping through texts on digital screens makes us skip through texts when we read on paper. The major downside to this is that text comprehension levels are decreasing. A lack of knowing what a text says will almost certainly lead to a lack of knowing what a text means. This is a worry, as it may undermine

⁸ Julie Carrie Wong, ‘Elon Musk unveils plan to build mind-reading implants’, *The Guardian*, July 17, 2019.

the citizen as a critical consumer of discourse and may leave the door open for a greater influence of state-actors on the general public in the malicious spread of fake news and post-truth ‘realities’.⁹ An upside of more screen-time reading is that boys, who have been notoriously poor book readers compared to girls, are now closing the gap owing to being able to engage with screens and smartphones instead of books. As the recent PISA study concludes, digital devices may be helping to improve the literacy of male teenagers.¹⁰

More generally, on the topic of literacy, there is a wider implication for the decline of reading and the resurgence of listening: an implication that has its positive sides in spite of our general scholarly and intellectual reservations. Although world literacy rates have increased significantly in the recent past, there are still huge swathes of the world where literacy rates remain low. One such region is sub-Saharan Africa, where the literacy rates in some countries are still below 30%.¹¹ A switch from reading to listening would eradicate this disadvantage almost immediately and lead to the building blocks of a level global playing field.

Yes, reading and writing may, in time, disappear. Humans managed without them before, 5,000 years ago, and they will probably do so again. What is here to stay, however, as long as humans are humans, is the emotive persuasive power of the rhetorical storyteller to tell tales and the emotive necessity for an audience to listen and in doing so be simultaneously both beguiled and instructed by those tales.

⁹ See the work of the ‘E-READ’ group of researchers who between 2015 and 2018 investigated the future of reading and broadly concluded that ‘the medium matters’. See also their ‘The Stavanger Declaration on the Future of Reading’ which also appeared in the *Frankfurter Allgemeine Zeitung* on January 22, 2019, <https://www.faz.net/aktuell/feuilleton/buecher/themen/stavanger-erklarung-von-e-read-zur-zukunft-des-lesens-16000793.html>.

¹⁰ Sian Griffiths, ‘Smartphones and screens help boys close gap on girls in reading’, *The Times*, November 3, 2019, citing the data from the 2019 PISA study.

¹¹ Max Roser and Esteban Ortiz-Ospina, ‘Literacy’, *OurWorldInData.org*, 2016, <https://ourworldindata.org/literacy>.

Conclusion

Speaking from an evolutionary perspective, reading is a very recent phenomenon. A question that can be posed: Is it a mere blip or will it stand the test of time? It is not easy for us to make that call. When you are in the middle of something that seems so normal and so natural and is so positive for education, for culture, for equality, it seems impossible that it could cease to exist.

This paper was primarily a reflection from a lover of books, but also from a bibliographic fossil on the edge of the precipice of time. It was a momentary observation in the year 2020, adrift in an undulating ocean of pixels and paper. Crucially, however, it was a reflection on the practice of reading in a state of flux. It is therefore unavoidable that you, the reader who may be reading this text in 2021 or later, will already be reading an outdated view of what was for me my 'reading reality'. For book lovers like myself, this tale may have been disturbing and confrontational. My general advice to any lover of books would be 'hold on to your hats' and enter into the immense changes that are undeniably to come with an open mind. Reading is about to write a new story in the coming years – and it will be one that will both delight and edify its listeners.

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