E-books and Reading Experience

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Abstract

The digital revolution gave us quick, convenient and instantly accessible information. The e-book is seen by many as natural successor of the paper book. Ever-improving technology aims to make e-readers better and better, so that the reading experience gets closer and closer to that of reading a paper book. But can it ever be the same? This article looks at ways in which the e-book affects how we read and how we process and memorise what we have read. It also discusses how e-books changes our understanding of what a book is, and how tracking readers' behaviour while using digital reading devices may affect book content.

Key Words

E-book, e-reader, e-format, digital technology, digital format, paratext

Form and format

"The most all-embracing aspect of the production of a book – and thus of the materialization of a text for public use – is doubtless the choice of *format.*"[1]

Genette's theory of paratexts examines the book as a physical object and considers that all the interventions a publisher brings to a book. He describes the paratext as "a fringe of the printed text which in reality controls one's whole reading of the text"[2].

The e-book changes the paratext completely. It lacks physical form, and therefore all the attributes the form carries. Some people consider that to be a good thing, since it frees the reader from all constraints. Says Tim Parks, in the New York Review of Books:

> The e-book, by eliminating all variations in the appearance and weight of the material object we hold in our hand and by discouraging anything but our focus on where we are in the sequence of words (the page once read disappears, the page to come has yet to appear) would seem to bring us closer than the paper book to the essence of the literary experience.[3]

However, e-book is not completely free of form - we need a digital device to read it on, so an e-reader becomes part of the paratext. By using it we enter into a complicated relationship with a manufacturer, which comes with terms and conditions imposed on us. We can read it on a variety of devices, but our options are so far restricted. Amazon e-

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[1]Genette, Gerard. *Paratexts: Thresholds of Interpretation*, Cambridge: CUP, 1997
[2]Genette, Gerard. *Paratexts: Thresholds of Interpretation*
[3]Parks, Tim *E-books Can't Burn,* 15 February 2012 http://www.nybooks.com *(Accessed 16.03.2014)*

books, for example, can only be read on a Kindle or through a Kindle app, and other major e-reader companies also have their restrictions. By changing the format in which the book is read, digital reading devices change what a book actually is, and how we read it. It changes the way we hold it, the way we store it, the way we own it and whether we, in fact, own it. Buying an e-book is actually a form of lease - long term or even indefinite, it still imposes limits and restrictions on use. In July 2009 Amazon remotely deleted US' Kindle users' e-books *1984* and *Animal Farm* by George Orwell, citing a copyright issue. "It illustrates how few rights you have when you buy an e-book from Amazon," said Bruce Schneier, chief security technology officer for British Telecom and an expert on computer security and commerce. "As a Kindle owner, I'm frustrated. I can't lend people books and I can't sell books that I've already read, and now it turns out that I can't even count on still having my books tomorrow."[4]

The e-book's digital formats may bring challenges too. According to Jean-Claude Carriere, "there is nothing more ephemeral than long-term media formats"[5]. The e-book is essentially a computer code that displays text and pictures on a digital device, but devices change frequently and yesterday's form may be obsolete by tomorrow. We can still read texts printed five centuries ago but not a CD-ROM which is only a few years old, unless we keep the old device it was made for. Will people be able to read the e-books they buy today in ten years' time? With e-reading technology improving all the time and new devices brought out every year, customers are expected to keep up in order to get the latest and best

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[4]Stone, Brad. Amazon erases Orwell Books from Kindle, 17 July 2009
http://www.nytimes.com/2009/07/18/technology/companies/18amazon.html?_r=0 (Accessed 22.03.2014)
[5]Carriere, Jean-Claude., Eco, Umberto, *This is Not the End of the Book,* Harvill Secker London 2011

reading experience. Manufacturers are trying to bring e-book reading closer and closer to the experience of reading a paper book, but with all digital format benefits, such as portability and convenience. If e-book technology changes the reading format so radically, how does that affect reading?

Does the way we process the text differ with a paper book and an e-book?

Not a lot of research has yet been done into the different ways they may change the nature of reading and processing information, especially with a view of long term effects. This is, however, an important issue, which may have serious cultural and educational implications. It is still early days for the e-book – too early to say whether it will come to replace the paper book, or whether the two will continue to exist side by side. But the fate of the paper book should not be left entirely to the market to decide, as what is good for companies' profits is not always good for cultural development.

Philosopher Alain de Botton said he soon dumped e-books when he realised that the information didn't really sink in. "I found that whatever I read on my Kindle I couldn't really remember in the long term. It was as if I had never read it"[6]. Others share his feeling – and publicise their feelings in numerous blogs and articles. Some studies have been done but the results vary, and with e-book technology rapidly improving, even a year or two can make a big difference in terms of e-book reader experience. The quality of the screen and the glare affects eye fatigue, whereas simulated page turning vs scrolling down affects navigation.

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[6] Quoted in *Authors stand up for traditional books over e-books*, Louise Gray, 21 July 2013
http://www.telegraph.co.uk/culture/books/10193467/Authors-stand-up-for-traditional-books-over-e-books.html

Earlier studies, from the late 1990s to early 2000s show marked difference in reading comprehension in favour of the paper book, but a lot of it was attributed to the e-book's poor design. Legibility issues and difficult navigating increased the cognitive load, making reading a longer text difficult.

A lot of the studies to date focus on students, school age or younger children, and it is not only because they are a relatively accessible target group. Firstly, they are more likely to be 'digital natives', as used to screens and digital devices as older generations are to paper and therefore not likely to be biased either way. And secondly, the findings of the studies are likely to affect their learning, education and reading experience more directly. In an age when mainstream use of e-books and tablet devices is debated and in many cases, actively encouraged, thorough research is needed in order to establish the educational benefits of the use of digital devices and whether or not they should replace paper as a teaching medium. This could potentially have a serious impact on the future of reading culture.

According to a study by the National Literacy Trust[7] published in 2012, for the first time children are reading more on computers and electronic devices than in print. However, the ones who read only e-books are less likely to enjoy reading, have a favourite book or be above average readers.

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[7] http://www.literacytrust.org.uk/assets/0001/4543/Young_people_s_reading_FINAL_REPORT.pdf

In another study, done in 2008 at Chongshin University, Seoul, South Korea[8], children aged 10 to 12, were asked to read a paper book and an e-book and answer questions on the content. The results revealed a significant "book effect" on comprehension, measured by quiz scores. Compared to e-books, paper books seemed to enable better reading comprehension. The children were 'digital natives' – frequent computer and digital device users who were used to and happy to read on a screen. Their quiz scores were consistently higher after reading a paper book, which shows that their concentration and comprehension was better with paper book reading. While 47% of the children said they were satisfied to read an e-book, only 7.98% said they would choose it over a paper book.

A Norwegian study, carried out by Anne Mangen[9] and her colleagues at the Reading Centre of the University of Stavanger, also confirms that reading print texts can be better for some aspects of comprehension. The participating teenagers were divided in two groups, one of which read a variety of texts on a screen, the other - on paper. Those who read on computer screens had understood less than those who read on paper – in the case of both fiction and non-fiction texts. According to Mangen, because of the materiality of a printed book the reader is more engaged with a text, while the opposite is true with a digital text in which the reader is engaged in a "shallower, less focused way".

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[8]Hanho Jeong *, A comparison of the influence of electronic books and paper books on reading comprehension, eye fatigue, and perception*; Department of Education, Chongshin University, Seoul, South Korea
http://www.twosides.info:8080/content/rsPDF_342.pdf

[9] *Reading linear texts on paper versus computer screen: Effects on reading comprehension* in International Journal of Educational Research,Volume 58 2013
http://www.sciencedirect.com/science/article/pii/S0883035512001127 (Accessed 15.03.2014)

This "book effect" could possibly be explained by eye strain and eye fatigue, which would reduce reading speed and concentration, affecting comprehension. If that is the case, would improving the digital device and bringing the reading experience as close as possible to reading on paper help eliminate the difference? Or is there more to it?

A recent study by Kate Garland, a psychology lecturer at the University of Leicester, attempts to look deeper into the problem[10]. She presented groups of students with material they haven't studied before, in digital and paper book format. The results showed that there wasn't a huge difference in student performance; however, there were some small but significant issues. While performing similarly in tests, students who read on screen needed more repetitions to remember the same information. Another important find was that students who read paper books seemed to digest the material more fully.

According to Garland, when you recall something, you either "know" it and it just "comes to you" — without necessarily consciously recalling the context in which you learned it — or you "remember" it by cueing yourself about that context and then arriving at the answer. "Knowing" is better because you can recall the important facts faster and seemingly effortlessly.

"What we found was that people on paper started to 'know' the material more quickly over the passage of time," says Garland. "It took longer and more repeated testing to get into that knowing state but eventually the people who did it on the computer caught up with the people who [were reading] on paper."

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[10]Quoted by Szalavitz, Maia in *Do E-Books Make It Harder to Remember What You Just Read?* 14 March 2012 http://healthland.time.com/2012/03/14/do-e-books-impair-memory/#ixzz2uEbzOn00 (Accessed 14.03.2014)

A possible explanation is the way spatial orientation aids memory. The way our brains have evolved means that knowing where something exists in the space around us helps us remember it and recall it through use of all our senses. Touching and feeling, or smell, or visualising helps us recall abstract information by giving it a place in the physical world.

As neuroscientist Mark Changizi said:

> In nature, information comes with a physical address (and often a temporal one), and one can navigate to and from the address.[...] And up until the rise of the web, the mechanisms for information storage were largely spatial and could be navigated, thereby tapping into our innate navigation capabilities. Our libraries and books — the real ones, not today's electronic variety — were supremely navigable.[11]

By stripping down a book to the bare text, an e-book removes the physical reference point our memory might need, and makes the reading experience somehow less real.

Jakob Nielsen, a web usability expert and principal of the Nielsen Norman Group, believes e-reading does lead to a different type of recall. "I really do think we remember less" from e-books, he says. "This is not something I have formally measured, but just based on both studies we've done looking at reading behaviour on tablets and books and reading from regular computers."[12]

Interestingly, the format we read in can also affect our emotions. Reading on paper seems to provoke a deeper emotional response in the reader, according to tests that Anne Mangen

[11]Changizi, Mark. *The Problem With the Web and E-Books Is That There's No Space for Them,* 7 Feb 2011 http://www.psychologytoday.com/blog/nature-brain-and-culture/201102/the-problem-the-web-and-e-books-is-there-s-no-space-them (Accessed 22.03.2014)
[12]Quoted by Szalavitz, Maia in *Do E-Books Make It Harder to Remember What You Just Read?*

conducted recently with David Miall and Don Kuiken from the University of Alberta in Canada.[13] They compared reading of a short narrative text on an iPad with reading it on paper. The test subjects who read on paper became more deeply involved with the story than those who read it on the tablet.

The branding agency Millward Brown also found, by using fMRI brain scans, that paper-based materials lead to a more emotional processing than on-screen materials, leaving a deeper footprint in the brain.[14] On the scan, that showed as increased activity within the area associated with the integration of visual and spatial information, engaging with spatial memory networks. It therefore feels more real to the person.

Format and content

It seems that, purely for reading a text, the paper format still has the upper hand – especially if it is a lengthy text we need to remember, or something we feel emotional about. Still, the e-format offers convenience, portability and instant access. More people than ever before are reading e-books. But what about content? Does the e-book popularity favour certain genres over others?

A quick look at the top-selling e-books reveals that easy, leisure reading dominates – romance, crime, erotica in various series. Titles like *Fifty Shades of Grey*, which filled the top three places in 2012, have contributed a lot to the e-book phenomenon. Being so portable, e-books are marketed as something to read quickly, on the go, while on holiday or on the

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[13]Mangen, Anne, Walgermo, Bente R, Brønnick, Kolbjørn *Reading linear texts on paper versus computer screen: Effects on reading comprehension*, International Journal of Educational Research, Volume 58, 2013, Pages 61–68
[14]Dooley, Roger. *Paper Beats Digital For Emotion* 4 October 2010
http://www.neurosciencemarketing.com/blog/articles/paper-vs-digital.htm (Accessed 12.03.2014)

train. The format has developed a natural affinity for easy reading. If we apply Pierre Bourdieu's theory of cultural production to e-books, we can say that so far, it has been the 'commercial' mode of production that has grown thanks to new technology. The other mode, the one of pure art, has not yet managed to make an impact through the e-book format.

The effect e-books have had on certain genres can be illustrated through the case of Harlequin, the leading romance publisher who announced disappointing annual results in March 2014. Their annual revenues have dropped by almost $100-million over the past five years, and digitisation of the romance genre has played the biggest part in that. "The low cost of digitization has also led to a proliferation in the number of digital titles available and increased competition", Harlequin's annual report says. "The proliferation of less expensive, and free, self-published works could negatively impact Harlequin's revenues in the future."[15]

In *The Rules of Art*, Bourdieu writes that: "An enterprise moves closer to the 'commercial' pole the more directly or completely the products it offers on the market respond to a pre-existing demand and in pre-established forms."[16] Thanks to e-books, the response to consumer demand has been taken to a new level. Publishers have long tried to analyse available data in an attempt to predict future trends and popular genres. E-readers and tablet devices make it look easy. Using tracking systems, the major e-book publishers, such as Amazon, Apple and Google can find out not only how many people buy which books, but how they read them – whether they read from start to finish, or never finish, and how fast

[15]Perry, Jack W. *Lessons Publishers Can Learn From Harlequin's Annual Results*, 14 March 2014, www.digitalbookworld.com
[16]Bourdieu, Pierre. *The Rules of Art* , Polity Press1996

they read. That information can be fed to retailers and publishers. When processed, the data will have an impact not only on sales and marketing practice, but also, possibly, on writers and their future works. Knowing what sells is one thing; knowing how your readers read, almost being able to get into their minds is quite another. Tracking reader habits provides opportunities for writing to the market, adapting quickly and making changes as necessary. It also offers publishers the opportunity to test the readers' response with a digital format before making changes and getting a print book out.

Amazon, being both a retailer and a publisher, has the unique opportunity to collect data and use it to its best advantage. Kindle users are routinely asked to sign an agreement granting the company permission to record and store information from their device: the last 'page' they have touched, their bookmarks, highlights, notes and annotations. Book apps for tablets like the iPad, Kindle Fire and Nook also record how many times readers open the app and how much time they spend reading.

Through analysing data, Barnes and Noble, the company behind the Nook e-reader, has found that people do not read non-fiction all the way through, as they tend to read fiction[17]. Instead, they tend to start and stop, in many cases not finishing the book, especially if it is a longer text. That has led to the launch of Nook Snaps, short non-fiction works on a variety of subjects.

Barnes and Noble, responsible for 25% to 30% of e-book sales in the US, has also found that science fiction, romance and crime fiction fans often read more books more quickly than

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[17]From *Your E-Book Is Reading You*, by Alter, Alexandra. 19 July 2012
http://online.wsj.com/news/articles/SB10001424052702304870304577490950051438304

readers of literary fiction do, and finish most of the books they start, while literary fiction readers quit books more often and tend skip around between books.

Detecting the point when readers get bored and abandon reading can also be useful in terms of manipulating the content, as authors may choose to include video, audio or other attention-grabbing features in order to hold readers' attention.

Some authors – and their publishers – would welcome an opportunity to get closer to the reader in that way, whereas others are concerned about the quality of data-driven literature. Jonathan Galassi, president and publisher of Farrar, Straus & Giroux, said: "The thing about a book is that it can be eccentric, it can be the length it needs to be, and that is something the reader shouldn't have anything to do with. We're not going to shorten 'War and Peace' because someone didn't finish it." [18]

In conclusion, it seems that there is more to reading than meets the eye! The e-book may make reading more convenient, but readers are not ready to give up the paper book and all it stands for. The arrival of the e-book comes to confirm that there may be benefits to the paper book we haven't even realised yet.

The e-book, on the other hand, has the potential to develop into something more than an inferior paper book. As Andrew Piper, a professor at McGill University and author of *Book Was There: Reading in Electronic Times* (Chicago), says: "In making electronic books look and

[18]From *Your E-Book Is Reading You*, Alter. A.

act like books – in being guided by a notion of simulation rather than reinvention – we have constrained ourselves from taking advantage of the potential of electronic reading."[19]

In the future, with all new technology has to offer in terms of video and audio enhanced content as well as textual analysis, the e-book might take off in an altogether different direction and become a multimedia experience.

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[19]Piper, Andrew, *Beyond the e-Book: The New World of Electronic Reading*, November 2013
http://www.worldliteraturetoday.org/2013/november/beyond-e-book-new-world-electronic-reading-andrew-piper#.UwsiIvmqmQA (Accessed 09.03.2014)

References

Alter, Alexandra. *Your E-Book Is Reading You*, 19 July 2012

http://online.wsj.com/news/articles/SB10001424052702304870304577490950051438304

(Accessed 11.03.2014)

Anderson, Kent , *Speed and Retention — Are e-Readers Slower and More Forgetful?* 21

March 2012 http://scholarlykitchen.sspnet.org/2012/03/21/speed-and-retention-are-e-

readers-slower-and-more-forgetful/ (Accessed 11.03.2014)

Biddle, David. *Why Aren't More People Reading E-Books?* 18 November 2013

http://talkingwriting.com/why-aren%E2%80%99t-more-people-reading-e-books (Accessed

12.03.2014)

Bourdieu, Pierre, *The Rules of Art*, Polity Press, 1996

Brady, Matthew. *Why do young readers prefer print to ebooks?*

http://www.theguardian.com/books/booksblog/2013/dec/04/ebooks-amazon (Accessed

11.03.2014)

Brodsky, Art*, The Abomination of Ebooks: They Price People Out of Reading* 10 February

2013 http://www.wired.com/opinion/2013/10/how-ebook-pricing-hurts-us-in-more-ways-

than-you-think/ (Accessed 11.03.2014)

Carriere, Jean-Claude., Eco, Umberto*, This is Not the End of the Book, Harvill Secker London* 2011

Changizi, Mark. *The Problem With the Web and E-Books Is That There's No Space for Them,*7 February 2011 http://www.psychologytoday.com/blog/nature-brain-and-culture/201102/the-problem-the-web-and-e-books-is-there-s-no-space-them (Accessed 22.03.2014)

Chiong Cynthia., Ree Jinny., Takeuchi Lori., Erikson Ingrid., *Print Books vs. E-books Comparing parent-child co-reading on print, basic, and enhanced e-book platforms, Cooney Center QuickReport,* July 2012 http://www.joanganzcooneycenter.org/wp-content/uploads/2012/07/jgcc_ebooks_quickreport.pdf (Accessed 06.03.2014)

Christensen, Arnfinn *Paper beats computer screens*, 13 March 2013 http://sciencenordic.com/paper-beats-computer-screens (Accessed 14.03.2014)

Dooley, Roger. *Paper Beats Digital For Emotion* 4 October 2010 http://www.neurosciencemarketing.com/blog/articles/paper-vs-digital.htm (Accessed 12.03.2014)

Genette, Gerard *Paratexts: Thresholds of Interpretation*, Cambridge: CUP, 1997

Gray, Louise, *Authors stand up for traditional books over e-books* 21 July 2013

http://www.telegraph.co.uk/culture/books/10193467/Authors-stand-up-for-traditional-books-over-e-books.html (Accessed 08.03.2014)

Greenfield, Jeremy. *More Americans Now Reading Ebooks, New Pew Data Show* 16 January 2014 http://www.digitalbookworld.com/2014/more-americans-now-reading-ebooks-new-pew-data-show/ (Accessed 11.03.2014)

Hanho Jeong *, A comparison of the influence of electronic books and paper books on reading comprehension, eye fatigue, and perception*; Department of Education, Chongshin University, Seoul, South Korea http://www.twosides.info:8080/content/rsPDF_342.pdf (Accessed 12.03.2014)

Koster, Lucas. *Is an e-book a book?* 19 November 2009

http://commonplace.net/2009/11/is-an-e-book-a-book/ (Accessed 12.03.2014)

Mangen, Anne, Walgermo, Bente R, Brønnick, Kolbjørn *Reading linear texts on paper versus computer screen: Effects on reading comprehension*, International Journal of Educational Research, Volume 58, 2013, Pages 61–68

Nielsen, Jacob, *In Defence of Print*, 1 February 1996 http://www.nngroup.com/articles/in-defense-of-print/ (Accessed 11.03.2014)

Nielsen Norman Group, *How People Read on the Web: The Eyetracking Evidence*

http://www.nngroup.com/reports/how-people-read-web-eyetracking-evidence/ (Accessed

03.03.2014)

Page, Larry. *My Wife's Lament, and Reading on Books vs. Screens,* 15 February 2012

http://bobsutton.typepad.com/my_weblog/2012/02/larry-page-my-wifes-lament-and-

reading-on-books-vs-screens.html (Accessed 10.03.2014)

Parks, Tim *E-books Can't Burn,* 15 February 2012

http://www.nybooks.com/blogs/nyrblog/2012/feb/15/ebooks-cant-burn/ *(Accessed

16.03.2014)*

Perry, Jack W*. Lessons Publishers Can Learn From Harlequin's Annual Results,* 14 March

2014, http://www.digitalbookworld.com/2014/lessons-publishers-can-learn-from-

harlequins-annual-results/ (Accessed 30.03.2014)

Piper, Andrew, *Beyond the e-Book: The New World of Electronic Reading* November 2013

http://www.worldliteraturetoday.org/2013/november/beyond-e-book-new-world-

electronic-reading-andrew-piper#.UwsiIvmqmQA (Accessed 09.03.2014)

Piper, Andrew, *Book Was There: Reading in Electronic Times,*16 November 2012, University

of Chicago Press

Stone, Brad. Amazon erases Orwell Books from Kindle, 17 July 2009

http://www.nytimes.com/2009/07/18/technology/companies/18amazon.html?_r=0

(Accessed 22.03.2014)

Szalavitz, Maia, *Do E-Books Make It Harder to Remember What You Just Read?* TIME.com 14

March 2012 http://healthland.time.com/2012/03/14/do-e-books-impair-

memory/#ixzz2uEbzOn00 (Accessed 14.03.2014)

The History of Reading: A Reader, London, Routledge 2010, 2011 The Rise of E-Reading, Pew

Internet & American Life Project, Washington, Pew Research Centre, 2012

Turning the Page: The Future of E-Books, PwC 2011 UK

Ward, Gerard. *62% of 16-24s prefer books as physical products,* 25 November 2013

http://www.voxburner.com/publications/347-62-of-16-24s-prefer-books-as-physical-

products (Accessed 17.03.2014)