



Analogous versus Digital Reading. A Comparative Study

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Abstract. The growing digitalization of our world is not only changing the way we process information but also raises new questions regarding the manner in which we read and comprehend digital texts. The way the digital text structures information is different from how traditional printed texts do it. Therefore, the receiver needs new strategies of text acquisition. It is not the well-known generalities related to the subject that my proposed study intends to regurgitate. Rather, it aims to focus on and attempts to explore some so far mostly ignored or only tangentially (if at all) mentioned aspects of the matter such as: 1) the literary (e.g. fictional) versus non-fiction nature of the digital text; 2) how digital reading culture affects analogue (print) reading culture; 3) a comparative generational view, i.e. similar or diverging features of the above factors, depending on whether the receiver of the text is a Generation X or a Generation Z reader, the former raised on printed books being the product of the “Gutenberg Galaxy,” while the latter is shaped both by the Gutenberg but primarily by the “Neumann Galaxy.”

Keywords: analogue reading, digital reading, fiction and non-fiction, e-book readers, e-books.

Reading Research

In the digital world, it is still true that only humans can speak, read, and write even if, thanks to artificial intelligence, we can now talk about machine reading, speaking, and writing. The statement “only humans read” is particularly true if we start from the following definition: “reading in a semiotic approach is the deciphering of signs [...] narrowly, the deciphering of a special system of signs, writing. Decoding the written signs, but this is not enough: one must understand what is written. Reading is comprehension, even constant thinking, justification, reasoning” (Adamikné 2006, 18).

If we have defined the obvious (reading), let us do the same with the reader with the help of Mortimer J. Adler and Charles Van Doren's seminal work *How to Read a Book*, which is still valid in many ways: "By 'readers' we mean people who are still accustomed [...] to gain a large share of their information about and their understanding of the world from the written word." Reading requires "keenness of observation, readily available memory, range of imagination, and, of course, an intellect trained in analysis and reflection" (Adler and Van Doren 1972, 3, 14). As for the levels of reading, we are dealing with "analytical" (as opposed to "elementary" and "inspectional" or "skimming" [speed]) reading. The reader is "always intensely active" (Adler and Van Doren 1972, 19 and Part Two): s/he thinks, asks the text questions, expects answers from it, analyses, interprets. S/he is a demanding and thorough reader of literary fiction, because only s/he is capable of analytical reading. For this s/he needs concentration of attention. This reader is not a cassette player, with a play-back function only, who plays back the pre-packaged opinion that has been inserted, "without having had to think" (Adler and Van Doren 1972, 4).

The issue of the future of reading has been addressed by a wide range of disciplines, national and international research, in inter- and multidisciplinary approaches. More than 30 years ago, the International Reading Association (IRA)¹ drew attention to the consequences of the emergence of the digital world: the transformation of the media world and its expected impact on reading, among other things, alongside the rise of the computer (Adamikné 2003, 9). In the three decades since then, however, the issue of reading has become more nuanced and thus more complex owing to the emergence of smart devices and digital platforms as a result of IT developments. Reading and its various interdisciplinary aspects are a cross-generational issue:² its role in education, the practice and methodology of teaching reading, the psychological aspects, the sociological dimensions of reading, the relationship between learning and reading, and the related problems of reading comprehension, as well as the impact of the new opportunities/dangers of the digital world on all generations currently living together.

The topic of our paper is derived from these developments: we wish to focus on the difference between analogue (print) and digital reading, with a particular focus on the reception of fiction versus non-fiction / research literature³ as well as on the generational differences in reception.

1 IRA 6th European Reading Conference: *Is There a Future for Reading?* (31 July – 3 August 1989, Freie Universität). Topics: reading, language, and culture; reading and language awareness; reading in the age of computers.

2 The presentations of the conference "Educating for Reading – Reading for Education," organized by the Hungarian Reading Association and János Neumann University on 28–30 November 2019, present good practices and research results from nursery to university.

3 In the present context, we distinguish between reading scientific literature and reading texts disseminating knowledge. Significant differences between the two reading modes can be

Marshall McLuhan sounded the alarm about the impact of communication technology (what he kept calling “electric technology”) on literacy as early as the first half of the 1960s. While being concerned about the decline of book culture, he also points out that the linearity of literacy (the lineal, linear, serial progression of the text on the printed pages) has had an impact on the development of human thought. Therefore, McLuhan continues, the decline of the “Gutenberg Galaxy” may bring with it the decline of human thought. What is more, it could lead to a transformation of our human existence (in a negative sense) if reading declines and is replaced by other activities. The issue of linearity is of particular importance for our topic since, similarly to the way (analogue) texts are printed, one of the essential characteristics of analogue reading is linearity; namely, the linearity of processing the lineal printed text, reading for understanding. Because, due to electronic media and the interactivity of digital reading (text branching, hyperlinks, multimedia), the good reader of today is very different from the good reader of decades ago. From a reading-anthropological point of view, the e-revolution, the emergence of digital information carriers has brought about a far greater change than the printing of books, which was also a revolutionary technical innovation in its time⁴ (Tószegi 2009, 2020).

Analogue and Digital Reading

In the context of analogue and digital reading, we need to talk about how the medium of information was changing in different historical periods, with what speed, where this process is going today, and how it is reflected in a generational approach.

Characteristics of the period from the end of the nineteenth century to about the middle of the twentieth century: prevailing print culture; schooling becomes universal; cognition is typically based on personal experience, but reading supplements it with printed information; the advent of radio;⁵ young people’s entry into the adult world is gradual. In the second half of the twentieth century: the emergence of television; young people gain instant access to the adult world, but there is still some filtering of information. At the dawn of the twenty-first century: the Internet becomes the leading medium; instant access to the adult world, without filtering or regulation (Námetovszky 2010, 4).

observed in terms of digital device use, reception, and different attention states. In other words, we are splitting into two what is, in the reading typology of one of the classics of reading theory, “knowledge-acquiring reading” (Adler and Van Doren 1972, 7).

4 It should be noted that the emergence of hypertext in e-texts has not brought about the radical transformation that some researchers had predicted (Golden 2009).

5 The Adler and Van Doren book was published before the advent of the Internet and digitalization. They saw radio and television as the competitors to reading.

As this brief historical sketch indicates, in addition to the fundamental social and economic-technological changes that have greatly influenced the sociology, philosophy, and psychology of reading, the acceleration of technological change is perhaps the most significant. David L. Ulin puts it this way: it is not the change of technology that is the biggest problem but the technology in which “the information and ideas flare up so quickly that we have no time to assess one before another takes its place” (Ulin 2010, 7). When new technologies replace old ones, the latter live on for a long time, parallel with the former, but quickly losing their economic and cultural power. Electronic media are also constantly repositioning themselves as the flow of e-information absorbs one medium and almost immediately creates another. It usually dissolves the physical form of the former; it divides its content into searchable chunks based on new logic; it adds multimedia elements, annotation and dictionary facilities, thereby changing the way texts are read, experienced, and thus understood. A one-page online text is very similar to a printed one of the same length, but they decidedly differ from a reading point of view. This is because “browsing” a web document requires a different kind of physical activity and sensory stimulus than the traditional “reading” of a printed text (Carr 2014, 118–119). According to the Norwegian literary scholar Anne Mangen, “all forms of reading are multisensory, that is, they affect several senses simultaneously” (Mangen 2008, qtd. in Carr 2014, 119). Mangen calls the relationship between the “material sensory-motor experience of the written work and the cognitive processing of the textual content” a “vital link” (Mangen 2008 – qtd. in Carr 2014, 119).

Specificities of printed texts: 1) realization – the text is present in its full physical volume, in which it is divided into parts, structured, thus helping the reader to discover and understand the logical relationships between the parts; 2) stability – the text takes a definitive form before publication, i.e. it cannot be changed at will; 3) statics – the text may be supplemented by two-dimensional illustrations and pictures, but these help the comprehension and better processing of the text’s content, and are in fact illustrative; 4) linearity – printed texts must be read through in order to grasp their content (Zamfirache 2005).

These are the components of the “vital link” then. They play a fundamental role in immersing oneself in the text being read, in understanding it, in activating the state of deep attention that is essential for deep reading. In comparison, electronic texts are characterized by: 1) e-actualization – the text volume is virtual, the reader has to perform exploratory technical activity, i.e. using navigation buttons, scrollbars, and thus the structural layout now creates a link between text elements in a non-textual way (Gonda 2011); 2) instability – the text can be manipulated because of its easily modifiable body; 3) dynamism – multimedia material is also embedded in the text; it can capture and divert attention, and can therefore be a distraction. Carr argues that multimedia text further fragments content and distracts concentration (Carr 2014, 120); 4)

hypertextuality – associative pathways connect individual text sections; the user decides which pathway to follow; a digital text on an electronic interface can take advantage of hypertext; it is multi-centred, networked, open or closed text system in a digital medium, in which elements and nodes of texts are connected by hyperlinks (Zamfirache 2005, 71), that is, hyperlinkedness also means entering an “ecosystem of interruptive technologies” (Doctorow 2009 – qtd. in Carr 2014, 121). We can thus conclude that electronic text features are in no way identifiable with analogue text features, and as such do not represent a “vital link.”

Digital text, as a fundamental tool of e-communication, organizes information differently from traditional text and therefore requires new strategies for processing and receiving it (Shmar-Dobler 2003). Browsing a web text, however, is a brain activity, stimulating several brain areas, and this can be interpreted as a positive aspect. Yet, attentiveness functions differently when using an online interface, and digital reading therefore impairs the ability to memorize information, to reflect on what is read, and to internalize the text (Durant and Horava 2015 – qtd. in Koltay 2016). This means that in digital reading, the hyperattention described by Katherine Hayles⁶ is prominent, and the deep attention that is essential for text comprehension is relegated to the background. According to Jacob Nielsen (Pernice, Whithenton, and Nielsen 2016), Internet readers do not progress linearly through the text. The acquisition of information from an electronic platform does not require reading in the traditional sense, but rather scanning is a way of describing the manner in which the Internet text is read by the recipient. It is also a question of neuroplasticity. According to Maryanne Wolf’s concept of neuroplasticity, the reader’s brain circuitry is inherently plastic and is influenced by key environmental factors: what the reader reads (content and genre approach), how the reader reads (print or e-text) and how the text is formatted, what instructions are included (Wolf 2018, 19).

Digital Text as Fiction and Non-Fiction

In the digital space, reading fiction differs in several respects from reading non-fiction (e.g. scientific papers, scholarly texts; i.e. reading for information). When reading literary fiction, imagination is necessary for comprehension,⁷ and fiction not only teaches and educates, but it also delights. It conveys experience and

6 Katherine N. Hayles’s hyperattention is characterized by rapid shifting of focus between different tasks, predominance of multiple streams of information, high threshold of stimulation, low tolerance for boredom (Hayles 2009, 187–188). According to the creator of the concept, in our constantly changing and multi-focused digital world, we need this ability, and therefore deep and hyperattention need to be “combined,” “both need to be cultivated.” Alan Jacobs disputes this position and its effectiveness in reading (Jacobs 2011, 105–106).

7 Imagination is necessary for reading both literary and informative texts, but in a different sense.

not concrete knowledge (Adamikné 2006, 336). In Ulin's words, "reading is a journey of discovery, an excavation of the inner world" (Ulin 2010, 13). We should also bear in mind that the "superficial" or "immersive" form of reading in the digital age does not depend in an exclusive way on the nature of the medium (i.e. whether it is a text in print or on screen) but on the "actual purpose" of the activity (Golden 2009, 87), i.e. the purpose for which a text is read. If the purpose of reading fiction is mostly for pleasure, to provide an aesthetic experience, the physical reality of the book, its volume, its immobility cannot be neglected. These contribute to the relaxed atmosphere that is essential for the reception of a literary work. It is something that the e-text (regardless of the medium) is not suitable for (Kerekes and Kiszl 2014). It is as much as to say that the "vital link" components of the printed text support reading fiction as an experience: immersion in the text, comprehension, and the mobilization of imagination.

Drawing on the research results of neurobiologists, psychologists, web developers, and academics in general, Carr also comes to the same conclusion: when uploaded on the Internet, digital texts promote superficial reading and superficial learning, hurried and distracted thinking (Carr 2014, 151). There is actually nothing surprising in this; among the traditional types of reading, this is how reading a text for knowledge, or "knowledge acquisition" works (in general, but not when reading with academic interest and focused attention). Naomi S. Baron devotes a whole book to learning-focused reading of school-aged readers of all ages and categories, from lower school to college (Baron 2021). What is "hurried" and "distracted" reading to Carr, Baron attributes to the multiplicity of digital texts as opposed to print documents.

The difference is manifested in the scanning reading form of digital texts and the different attentional state. Digital texts, in addition to requiring a different strategy in our eye movements when reading them (the Nielsen F-pattern)⁸ and because of the embedded hyperlinks, further disperse attention, i.e. perpetuate the hyperattentive state. Thus, the deep attention needed for understanding cannot be activated. If we take, then, the fiction or non-fiction nature of digital texts as determinants of reception, these differences (F-pattern and hyperattention) are fundamental in distinguishing between the two types of text, i.e. print and digital. A digital text is (in principle) suitable for reading a literary work, for understanding it and for absorbing its content if it does not contain hyperlinks and is presented on a medium that is most similar to a printed book, and if it provides the emotional state in which the text "comes through" and touches the reader, thus activating deep attention. Thus, the McLuhan theorem can be

8 According to Jacob Nielsen's F-pattern, when reading on the screen, our eye movement describes a letter F, which means that we read the lines at the top of the page, but only until about the middle, and then only vertically across the left-hand side of the page.

reversed: the message is not the medium itself but the text.⁹ And this is where some of the components of the “vital link” make sense again.

On this basis, we would assume that among modern e-devices, the e-book reader fulfils the criteria, as the text on e-sites using e-ink is congenially similar to the printed form (margins, page mirror, pagination, typography, aesthetics). Moreover, they have the realization and linearity of printed text.¹⁰ The emergence and spread of the by now several-generations-old Amazon Kindles, Barnes & Noble Nooks, PocketBooks, tablets, and iPads foresaw a decade ago that e-reading (and here we are thinking specifically of fiction) would inexorably advance and replace print book reading in the foreseeable future.¹¹

Yet the digital media revolution has not happened, or is not happening as fast as predicted. In fact, it has produced surprisingly different results. While Amazon initially reported a steep increase in e-book sales (e-books accounted for less than 10% of total sales in 2008, rising to 35% in 2009) and a dynamic growth in the number of e-book readers (1 million devices sold in 2008, 12 million in 2010), this dynamic was broken in the following decade. It is now clear that the e-book revolution has not brought the change that was expected in the first decade of the century. It is due to a number of factors: rapidly changing technologies, device obsolescence, price/value ratio, environmental concerns, business interests and profits, reader attitudes, generational issues, and so on.

These are not insignificant developments, but for the purposes of the present paper we must stick to our narrower, specific topic and focus on the differences between digitalized literary fiction versus the digital text as non-fiction, scientific, professional literature, or a text disseminating knowledge (literary versus informational reading in Baron’s terminology). If we start from the assumption that reading literary fiction is linear in its progressive nature, in this sense (and only in this sense) the experience of reading is linear. A digital text is still book-like and can in fact activate deep attention in a way reminiscent of the reflexes of analogue reading. So, an e-device (in this case, an e-book reader) could be used for more than superficial reading: it could be used for seriously grasping and absorbing digital fiction texts. Precisely because of its aforementioned book-like nature, it is modelled on a printed book in form and appearance, with no screen reflection thanks to e-ink; it is, therefore, easy on the eye and also linear. The technical aspect is that the back-up memory allows hundreds of volumes to be stored on a single

9 This is a reference to McLuhan’s well-known statement that “the medium is the message,” from the opening chapter of his *Understanding Media* (McLuhan 1964, 23–35).

10 E-book readers usually have font size and colour adjustment options, so they do not provide static text. They can be bookmarked and include text highlighting features, but these do not affect the length and linearity of the text.

11 The slowdown in the take-up of e-book readers may also be explained by the fact that Apple launched the iPad (a few years before the Kindle), and the new device already had built-in features that were even more capable of distracting attention.

device, and the battery lasts for weeks without recharging. In other words, all the positives would indicate that the rise of digital reading (in this case, e-fiction) is unstoppable. However, e-book sales statistics (which do not separate fiction from non-fiction, though), after an initial boom (with dynamic sales growth between 2011 and 2013), are now showing a downward trend year after year.

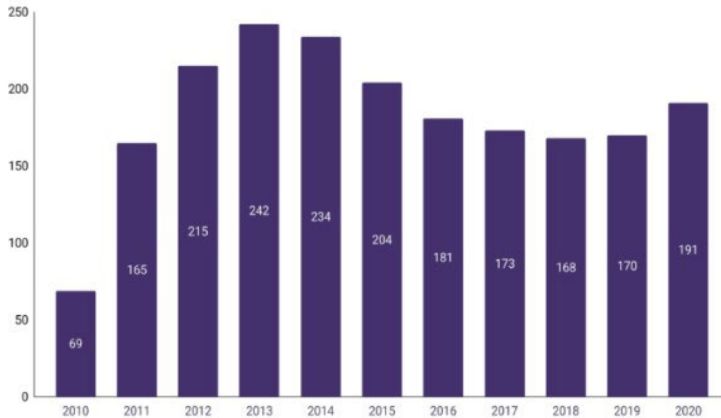


Figure 1. *Number of e-books sold per year (million copies)¹²*

In 2020, the year in which COVID-19 becomes a pandemic, the increase of 12.35% compared with the previous year of 2019 is certainly also due to the pandemic. But what factors could have been operating behind the declining pre-pandemic figures? A possible explanation might be the reader response determinant. If we take reading experience, the anthropomorphic nature of the printed book, the need for deep attention to absorb fiction in a meaningful way, digital media, i.e. the e-devices themselves, still cannot provide the same conditions of reception and reading experience as print books can. Even the most advanced built-in features of e-book readers seem to become counterproductive, precisely because the remaining elements of the “vital link” are gradually disappearing as a result of constant improvements. Increasing convenience functions take precedence over the classic mechanism of reading, thus promoting a predominance of hyperattentiveness. While fiction texts do not contain hyperlinks¹³ that lead to distraction, the built-in features (e.g. Amazon’s offline

¹² Source: E-books sales statistics 2023. <https://wordrated.com/ebooks-sales-statistics/> (Last accessed 23 July 2023).

¹³ It should be noted that the presence of hyperlinks in an informative or literary text is particularly beneficial. From an information-seeking point of view, it certainly is. However, the change in attentional state applies here too. Deep attention is required for a deep, meaningful reading of a linear text. Opening embedded links and moving on to another text disrupts this, regardless of the otherwise valuable information benefit.

book search and e-commerce) tempt us to “wander” a little in the web store while interrupting the reading of the text.¹⁴ Or, at any time while reading, you can check, with a single click on “new mail,” whether a new message has arrived in your inbox while you are reading. With such phenomena, “recent digital technology is creating a veritable storm of distractions, with the powerful force of B. F. Skinner’s ‘interruptive reinforcement’” (Jacobs 2011, 82–83).

As for the negative aspect of built-in distractions, it should be noted that they can also have positive effects – when reading literary fiction, for example, or when reading fiction in a foreign language for language-learning purposes. In the latter case, the built-in e-dictionary is an advantage that a printed book cannot compete with. Baron’s longitudinal research on digital and analogue reading¹⁵ may support the declining e-book sale figures mentioned above.

Table 1. *Digital vs analogue reading (Baron 2015, 82–85)*

Options	Format	US	Japan	Germany
Schoolwork done using	Hard copy	59%	75%	68%
	Digital screen	41%	25%	32%
Pleasure reading done using	Hard copy	73%	76%	69%
	Digital screen	27%	24%	31%
Long schoolwork text	Prefer hard copy	92%	77%	95%
Long pleasure reading text	Prefer hard copy	85%	74%	88%
If cost were the same, preferred medium for schoolwork	Hard copy	89%	77%	94%
	Digital screen	11%	23%	6%
If cost were the same, preferred medium for pleasure reading	Hard copy	81%	83%	89%
	Digital screen	19%	17%	11%

The target group of her *Words Onscreen* were Generation Z college students. Surprisingly, this generation also prefers analogue to digital reading (for almost all reading intentions and text types). Her findings in the field of pleasure reading support the above arguments in favour of analogue reading. The use of print also dominates in answers to learning-related questions (and reading the literature is prominent in this). Baron’s 2021 *How We Read Now*, which targets reading intended for learning and devotes chapters to differences between reading in print versus reading digitally, convincingly argues that synthesising sense-making is more difficult for the digital than for the print reader. No wonder that

14 Please note: Amazon’s offerings are not typically the most valuable literary fiction. Light, fun, bestselling literature is widely available, and it is very rare to find evergreen classics.

15 Baron asked American, Japanese, and German university students about their reading habits: whether they typically use print books or digital texts in different situations, for study or leisure.

she closes her Chapter 5 with these “cautionary notes:” a foregrounded work with online texts “risks marginalizing literary reading and longer texts in the school curriculum;” and it “potentially encourages less complex and reflective thinking than reading in print” (Baron 2021).

What are the possible explanations? One would assume that reading and processing literature is much easier in digital format. After all, the instability, dynamism, and complexity of e-texts allow for annotation and highlighting, and embedded hyperlinks as well as the access to additional, supplementary information all facilitate the learning process. On the other hand, deep attention is essential for the processes of comprehension and memorization, but it is almost impossible to activate it in a digital environment, when the reader, Baron maintains, handles multiple sources as opposed to a single printed text; and when readerly memory retains much less as a result, as reading comprehension tests indicate. What we can infer from the above data, however, is that the young generation’s preference is for deep attention despite other available options, and this is why they use more print books for learning purposes. At the same time, it is a fact that the most recent literature is typically published in e-format, so that there is no choice between print and e-format in this case. 39% of Baron’s respondents print out digital material first and then read it as an analogue text. 55% of students read the material online. So, a fairly high proportion of respondents opt for analogue text in this area too.

The Generational View¹⁶

Both interview subjects are literate (in fact, college-degree holder) people. The Generation X representative is a university teacher, educated in a pre-Internet world, but has excellent digital skills and follows the latest trends in terms of device use. She typically reads academic literature, but reading fiction for pleasure and relaxation¹⁷ plays a major role in her life. The Generation Z interviewee is a PhD student with a high level of digital literacy. Her learning and information

16 Two comparative in-depth interviews with a Generation X (female 55) and a Generation Z (female 22) subject. We are aware of the limitations of in-depth interviews and plan to conduct focus-group interviews on this topic in the future.

17 In this case, it is a reading motivation category. Alan Jacobs, who is rather critical of the Adler and Van Doren monograph, does adopt the three categories of reading purpose and motivation of the latter authors: reading for information, reading for understanding (of life and the world), and reading for entertainment (Adler and Van Doren 1972, 7–10). However, Jacobs finds one category insufficient: instead of “reading for entertainment,” he introduces the notion of “reading for pleasure” (Jacobs 2011, 98). This fits well with his recurrent basic idea that real reading is “reading at whim” (Jacobs 2011, 15). In a way, we must also defend Adler and Van Doren because for them “reading for pleasure” is not synonymous with “reading for the pleasure of reading.” It means the undemanding reading of light, undemanding texts (Adler and Van Doren 1972, 10).

acquisition strategies are fundamentally linked to the digital space; moreover, her research focuses on the various contexts of digital space. She reads a considerable amount of the literature, and her reading of literary fiction is also outstanding.¹⁸

1. What do you think about reading and how do you spend your free time?

X: I consider reading to be part of my life. Not because it is intrinsic to my profession but because I need the emotional and intellectual relaxation that reading gives me. I was brought up in the world of printed books, where screen culture had not yet played an overwhelming role. In my childhood, books were a precious gift. We treasured them and typically read them. In my spare time, I still (unsurprisingly) prefer to read. Strictly fiction. My book-buying habits are related to this: I put on the shelf every book I buy with the determination to read it during my next holiday. I consider reading to be an essential human activity and cannot give up the pleasure of reading. I don't question the importance of visuality and do not wage a spectacular war against screen and Internet culture, but I am convinced that understanding the world is inconceivable without reading as a cognitive activity.

Z: Reading is essential for me, as I am currently studying. I read a lot of required literary fiction during my undergraduate and postgraduate years at the university and did not experience difficulty doing it. I love reading. But in my free time I prefer to watch films, listen to podcasts and music. I also read fiction, but only if I get my hands on a really good book.

2. How and in what form do you read the literature? What kind of note-taking do you do?

X: Reading the literature is very much part of my profession. In our digital, world it is typically e-formatted, so I have access to the latest literature almost exclusively in e-form. The first time I read it, I quickly check whether it contains information that is essential to me. If it does, I print it out and read it in hard copy, taking notes, underlining, and highlighting the most important ideas; in other words, I process the text. I download the e-version to my external winchester. Typically, everything is downloaded, with the materials stored in a logical folder structure. Still, when I need a long-forgotten study, I find it difficult to locate among the hundreds of files and almost always pull the printed, processed version out of the drawer.

Z: I encounter the literature in e-form. I borrow the handbooks of the definitive literature in my field from the library and make notes. I cannot afford buying them, but if I could, I would get them. I download the digital material, read it and print only the parts that are essential for me. When I have processed them, I throw the printed pages away but keep the e-form. I take notes on a computer, but I also use a notebook.

18 The in-depth interview consisted of twenty questions. Only responses intrinsically related to our topic are presented in this paper.

3. What e-tools do you have? How often and what do you typically use them for?

X: I have almost every tool available on the market. It is true that some of them are quite old. At work, I use a desktop and a laptop (often simultaneously), at home I have two laptops. I have an Apple iPad, a Kindle Paperwhite e-book reader, and two Android smartphones. Typically, I work on laptops (proofreading papers, writing research papers), I conduct my e-mail correspondence and send short messages using my phone. I also read the daily news on my phone, almost always visiting the same portals. If I don't like an article, I jump to the next topic after the first few lines. I carry my iPad along when I travel. As I'm on the move a lot, I also work on the train; if I need an e-device, I prefer to use the iPad, as it has a larger screen and a better navigation interface. I bought a Kindle Whitepaper ten years ago and had high hopes regarding it. I was convinced that reading the literature would continue to be done on this device so that I would not have to carry around heavy reference books. This did not turn out to be the case. My initial enthusiasm waned, the built-in features (highlighting, annotation, content search) were not satisfactory for me. Slowly, I had to realize that I would eventually buy a printed version of the textbook that I had bought in e-format. At first, I downloaded a lot of free English-language so-called "belles-lettres" from Amazon. I read a few of them and found them very effective from a language-learning point of view thanks to the built-in monolingual dictionary. Today, hundreds of e-books are available on Kindle, but I haven't turned my reader on for the last few years. In fact, I cherish the illusion that I'll just take the Kindle on holiday so as not to have to carry several volumes of printed books with me. I had to admit: I can't read hundreds of books in ten days on holiday anyway, especially if the Amazon selection doesn't suit my literary taste, doesn't offer me a valuable literary experience, and I don't enjoy reading as much as I would if I were reading a printed book.

Z: I have a laptop and an Android smartphone. I do everything on these devices. I find it completely unnecessary to buy other devices. I use office software on my laptop, everything else I do on my phone. If I download material from a database, I typically read it on the laptop because the smartphone screen is not suitable for reading long texts, not to mention the circumstance that I almost always interrupt my text reading and surf the web a bit. This is also typical of my use of the laptop. I don't own an e-book reader and don't intend to buy one in the future. It doesn't do more than a smartphone, it costs a lot, and an e-book is not cheaper than the printed version. If for some reason I do buy an e-book, I read it on my laptop.

4. Do you have a library at home? How often do you buy print or e-books?

X: Yes, I have a very large library. I buy print books regularly and my gifts to others are also books. I don't buy e-books at all, and now I don't download them any more even if I can get them for free.

Z: I have a small library of my own, and yes, when I can afford it, I like to buy print books regularly.

The responses of the in-depth interviews with Hungarian interviewees correlate on several points with the international research findings cited above, overriding the basic assumptions of generational theories in several respects. Starting from the focal points of the present discussion, i.e. the nature of the digital text as a reading medium and the impact of digital reading culture on analogue (print) reading culture, the following transpires. The Generation X interviewee, who is a digital immigrant, does not show a different pattern in terms of the use of technical tools and digital competences than the Generation Z representative of the digital natives. Their information-seeking practices differ minimally, both preferring analogue reading, even if there are fundamental differences in their use of digital tools. Similarly to Baron's research findings, our interviewees also process e-texts in print for learning and research purposes and prefer traditional books for reading literary fiction. All in all, therefore, it can be concluded that there is no clearly demonstrable generation gap or significant difference (between our interviewees) regarding the research questions. At the level of cognitive processes, irrespective of the nature of the text (i.e. whether it is literary fiction or non-fiction / research text), analogue reading is preferred.

Conclusions

The literature cited, the empirical data in the figures above, and the in-depth interview responses – in full awareness of the circumstance that these interviews are not representative, and a large number of samples will have to be collected in the future – outline the general idea that in the digital world of the twenty-first century both forms of reading (analogue and digital) are legitimized and find their users. Given the rapid changes in technical equipment and the development of information technology, one would think that the trend of our times will accelerate: sooner or later digital texts will take the lead, digital reading will gain strength, replacing analogue reading. Surprisingly, the data show that this is not the case: despite the digital revolution, the traditional “craft” of reading is still strongly linked to the product of the “Gutenberg Galaxy,” the printed book. This is due to the often individual-specific psychic and intellectual characteristics of human emotions and intellect on the receiving end, to cognitive processes, and, especially in the case of learning, to memorization mechanisms on the one hand and to the specific activity traditionally known as reading on the other. In other words, what all this adds up to – to phrase it in terms of the linguistic idiom – is a meaning (in this case, *reading*, and especially what good reading means to a good reader) which is new and not identical with the sum-total of its constituent elements.

Works Cited

- Adamikné, Jászó Anna. 2003. *Csak az ember olvas: Az olvasás tanítása és lélektana* [Only Humans Read: The Teaching and Psychology of Reading]. Budapest: Tinta.
2006. *Az olvasás múltja és jelene* [The Past and Present of Reading]. Budapest: Trezor.
- Adler, Mortimer J. and Charles Van Doren. 1972. *How to Read a Book: The Classic Guide to Intelligent Reading*. New York: Simon and Schuster.
- Baron, Naomi S. 2015. *Words Onscreen: The Fate of Reading in a Digital World*. New York: Oxford University Press.
2021. *How We Read Now: Strategic Choices for Print, Screen, and Audio*. Oxford: Oxford University Press.
- Carr, Nicholas. 2014. *Hogyan változtatja meg az agyunkat az internet? A sekélyesek kora* [How Does the Internet Change Our Brains? The Age of the Shallow]. Budapest: HVG.
- Doctorow, Cory. 2009. "Writing in the Age of Distraction." *Locus* 07 January. <http://www.locusmag.com/Features/2009/01/cory-doctorow-writing-in-age-of.html> (Last accessed 28 March 2023).
- Durant, David and Tony Horava. 2015. "The Future of Reading and Academic Libraries." *portal: Libraries and the Academy* vol. 15, no. 1: 5–27.
- Golden, Dániel. 2009. "Az elektronikus olvasás mintázatai" [Patterns of Electronic Reading]. *Információs Társadalom* vol. 9, no. 3: 85–94.
- Gonda, Zsuzsa. 2011. "A nyomtatott és a digitális szövegek megjelenítése az interaktív táblán" [The Display of Printed and Digital Texts on the Interactive Whiteboard]. *Anyanyelv-pedagógia*. 1. <http://www.anyanyelv-pedagogia.hu/cikkek.php?id=46> (Last accessed 4 February 2023).
- Hayles, Katherine N. 2009. "Hyper and Deep Attention: The Generational Divide in Cognitive Modes." <https://www.jstor.org/stable/25595866> (Last accessed 18 May 2023).
- Jacobs, Alan. 2011. *The Pleasures of Reading in an Age of Distraction*. Oxford: Oxford University Press.
- Kerekes, Pál and Péter Kiszl. 2014. "'Műszálas' olvasás – mérlegen a nyomtatott és az elektronikus szöveg" ["Synthetic Fibre" Reading – Printed and Electronic Text on Balance]. *Könyv és nevelés* vol. XVI, no. 4. <https://folyoiratok.oh.gov.hu/konyv-es-neveles/muszalas-olvasas-merlegen-a-nyomtatott-es-az-elektronikus-szoveg> (Last accessed 25 June 2023).
- Koltay, Tibor. 2016. "Néhány adalék a digitális olvasás témaköréhez" [Observations on Digital Reading]. *Könyv és nevelés* vol. 18, no. 3. <https://folyoiratok.oh.gov.hu/konyv-es-neveles/nehany-adalek-a-digitalis-olvasas-temakorehez> (Last accessed 28 March 2023).

- Mangen, Anne. 2008. "Hypertext Fiction Reading: Haptics and Immersion." *Journal of Research in Reading* vol. 31, no. 4: 404–419.
- McLuhan, Marshall. 1964. *Understanding Media: The Extensions of Man*. New York: Signet.
1969. *The Gutenberg Galaxy*. New York: Signet.
- Námetovszky, Zsolt. 2010. *Hagyományos és digitális írás-olvasás* [Traditional and Digital Writing-Reading]. Szabadka: Újvidéki Egyetem.
- Pernice, Kara, Kathryn Whitenton, and Jacob Nielsen. 2016. "How People Read Online: The Eyetracking Evidence" <https://docplayer.net/62280397-How-people-read-on-the-web.html> (Last accessed 20 March 2023).
- Shmar-Dobler, Elizabeth. 2003. "Reading on the Internet: The Link between Literacy and Technology." <http://literacyuncc.pbworks.com/f/Reading%2520on%2520the%2520Internet.pdf> (Last accessed 5 June 2023).
- Tószegi, Zsuzsa. 2009. "Az olvasás trónfosztása? Adalékok a könyvből, illetve a képernyőről való olvasás kérdéséhez" [Dethronement of Reading? Observations on Reading from Book or on Screen]. *Könyv és Nevelés* vol. 11, no. 4. https://epa.oszk.hu/01200/01245/00044/tzs_0904.htm (Last accessed 23 July 2023).
2020. "Súlyos változásokat okoz az agyban a digitális olvasás." [Digital Reading Causes Serious Changes in the Brain]. <https://infostart.hu/kultura/2020/01/11/sulyos-valtozasokat-okoz-az-agyban-a-digitalis-olvasas> (Last accessed 4 May 2014).
- Ulin, David L. 2010. *The Lost Art of Reading: Books and Resistance in a Troubled Time*. Seattle, WA: Sasquatch Books.
- Wolf, Maryanne. 2018. *Reader, Come Home: The Reading Brain in the Digital World*. New York: Harper.
- Zamfirache, Iris. 2005. "Enciklopédia és virtualitás" [Encyclopaedia and Virtuality]. *Világosság* vol. 46, no. 9: 69–74.