



Universiteit
Leiden
The Netherlands

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Schüller-Zwierlein, A.; Mangen, A.; Kovač, M.; Weel, A.H. van der

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Why higher-level reading is important

by André Schüller-Zwierlein, Anne Mangen,
Miha Kovač, and Adriaan van der Weel

Abstract

Societies are facing fundamental transformations as digital technologies are changing the ways we live, interact, work, study and read. The social and cultural impact of the digitization process on reading skills and practices remains under-researched. While digital technologies offer much potential for new forms of reading, recent empirical research shows that the digital environment is having a negative impact on reading, in particular on long-form reading and reading comprehension. It also remains unclear whether the transition to digital media actually lives up to its promise of improving learning outcomes. Recent studies of various kinds indicate a decline of crucial higher-level reading competencies and practices, such as critical and conscious reading, slow reading, non-strategic reading and long-form reading. Current educational policy, meanwhile, relies heavily on monocultural standardized testing of basic reading capabilities and on growing use of digital technologies. Reading education, assessment, research and policy-making should focus more on higher-level reading practices in both adults and children in order to understand the development of reading skills and practices in an age increasingly dependent on a ubiquitous digital infrastructure.

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1. Why this paper?

The declining reading motivation and reading skills; the narrowing of reading practices

Despite the demands our highly developed world places on reading, the reality is that many people today struggle to acquire even basic reading skills and higher-level reading skills and habits are declining. As much as one quarter of the American population does not read books (Gelles-Watnick and Perrin, 2021). A third of the German adult population reads in a book less than once per month (Statista, 2022). The most recent PISA survey (Organisation for Economic Cooperation and Development [OECD], 2021) showed a stark decline in leisure reading, with approximately one third of students reporting that they rarely or never

read books for leisure. Moreover, 49 percent agreed or strongly agreed with the statement “I read only if I have to” — an increase of approximately 13 percentage points from PISA 2000 (OECD, 2021). As much as one third of the European population struggle even with lower-level reading skills [1]. What setbacks may be suffered by higher-level reading skills we can only surmise, as they are not measured at all. Yet to be able to negotiate the complexities of the information society such higher-level reading skills are more vital today than ever before.

The importance of literacy, and especially reading

Modern literate societies are the product of a long cultural evolution in which reading and writing became ever more central. How well people can flourish, or even function, in a literate society today is determined by the level of their literacy.

Literacy — reading and writing — enables the transmission and preservation of information and knowledge in every reach of life: news, government administration, science and scholarship, religion, education and so on. It also facilitates the exchange of complex human judgements and emotions. Since it forms the foundation of life-long learning, individuals of every age need good reading skills. Moreover, as an unintended side effect, reading also exercises discipline and attention and cognitive patience. Though not necessarily consciously pursued, this effect is highly prized (van der Weel, 2018). Last but by no means least, reading is the most central and powerful thinking tool that we have.

Just as individuals depend on good reading skills for their personal wellbeing and development, society depends on them for economic development, for social and political participation and thus for democracy. Today’s sophisticated society is not just the product of reading, it depends on reading for its future survival and continued resilience.

This fundamental cultural and social role of reading is not always sufficiently recognised. The central importance of reading has become too self-evident, and thereby almost ‘invisible’. Insofar as they are recognised, the enormous complexities of reading tend to be underestimated. Reading is too often conceptually flattened and oversimplified to mean basic decoding skills. This disregards all more complex interpretative interactions with text. The complexity that characterises this unique human achievement includes:

- The term itself, which covers a multitude of different processes of human engagement with texts, such as re-reading, gradually realizing different meanings or bias, comparing parts of the text with each other, comparing different texts, dealing with conflicting information and varying modes of presentation, etc.
- The variety of readers with their individual levels of reading skills and reading strategies; their different habits, preferences and widely varying levels of background knowledge; their varying reading motivations and goals; the “increasing diversity and complexity of situations involving texts and reading” (Organisation for Economic Cooperation and Development [2], including physical environments and online communication processes;
- The many psychological processes involved in reading, including motivation and frustration, pleasure and leisure, emotional responses, therapeutic and meditative effects, imagination and mental imagery, creativity and inspiration;
- The numerous barriers to reading — from motivational and background knowledge barriers to low literacy and dyslexia — affecting children as well as adults, including even in the academic community;
- The complexity of texts, whether it derives from linguistic complexity of the text itself, from the ideas and arguments it expresses or from the complexity of the human interaction it describes, requiring previous knowledge or social cognition skills such as perspective taking and empathy;
- The variety of reading media and ways of gaining access to them. This includes the multimodality of reading, requiring readers to understand the relationship between information in written form and in other modalities, such as images, charts, diagrams, video or sound, which are all processed and

experienced very differently, cognitively as well as affectively/emotionally. Digital reading covers as much complexity as print reading.

- The multilinguality of reading, with especially non-English speaking young people today finding themselves forced to be literate in English if they are to participate fully in various media, especially online.

The digital challenge

One major cause of the massive changes in reading practices in recent years has been the increasing use of screens for reading. This has also added tremendously to the complexity and sophistication of text-based communication in today's highly developed world. Digital developments have led to profound questions about the role of reading for the individual and society, to fears concerning the loss of cognitive and cultural capabilities, and to a perception of the limits of current educational standards. Continuing the E-READ project (E-READ, n.d.), which began to address the digital challenge in 2014–2019, **this paper aims to set out for all stakeholders — including scholars, scientists, politicians, educators, librarians and book industry professionals — the state of our understanding of the nature and importance of higher-level reading skills and practices for contemporary society, the issues higher-level reading faces, and the ways in which these issues may be addressed.** It takes into account the most recent interdisciplinary scientific research on reading and its effects, both on the individual brain and on society. While assessments of the state of reading in today's society mostly focus on basic reading skills, this paper's main goal is to draw attention to the urgent need for teaching and enabling higher-level reading skills and practices in the digital age and to make concrete suggestions for assessing, researching and teaching them, in order to make sure that future generations are not failed by words.

To prepare for this complexity, learning to read cannot stop at the decoding or fluency level, but should be extended to offer everyone the appropriate skills and abilities to cope with it. The sophisticated reading skills and practices needed to function in our highly developed world we will refer to collectively as higher-level reading.

2. What is higher-level reading and why is it important?

The context

In the last three decades the reading environment has experienced a media metamorphosis that is transforming the ways we communicate, learn, work, love and hate. In this process, in the majority of countries an enormous amount of textual information has become available with unprecedented ease to practically all citizens. Educators, publishers, authors, software programmers and creators of digital content are generating new digital platforms and media products every day. Like printing before them, the digital media have enabled us to store, retrieve and consume more information than ever before in human history. Yet regardless of all benefits of the media transformation, our ability to understand and make use of all this newly available information still primarily depends on our capacity for critical thinking. Conversely, our ability to think critically and creatively and to engage in social and intellectual perspective-taking remains irreducibly connected with the level of our reading skills and practices. Therefore, we advocate that more attention should be paid to higher-level reading by all stakeholders.

Higher-level reading skills

In what follows, we identify a spectrum of indispensable higher-level reading practices — the term “practices” is intended to comprise what you read as well as how you read and from what substrate, habits as well as skills, as these are mutually reinforcing [3]. This suite of skills and practices — modes of interaction and engagement — take the act of reading beyond the mere extraction of information; that is:

beyond the basic skills of text decoding and comprehension. The following are some examples from an almost endless list of reading modes. There is no fixed separation between them and more than one of them can be exercised in any one reading process. Central in this suite of skills therefore is the ability to choose seamlessly between them, according to the demands of the text and the reading goal. It requires the reader to adapt flexibly to the developing reading situation, contexts, presentation modes and textual connections during the reading process, choosing the appropriate mode. All higher-level reading is therefore consciously metacognitive [4], involving the conscious choice of reading texts, reading media, reading situations and reading strategies, the conscious tracking and adjustment of reading behaviour, especially in multimodal contexts, as well as — crucially — a continuous monitoring of comprehension.

- *Critical reading* is especially important for political participation and a stable society. It is aware of the abundance of misinformation and the existence of political and ideological bias and manipulation. It pays conscientious attention to logic, scrutinises inference and analogies and analyses the sources of its information.
- *Immersive reading* (Mangen, 2008; Kovač and van der Weel, 2018; Rosebrock, 2020) makes us forget the world around us. It is related to recreation as well as to sustained attention and concentration. As an antidote to the multi-tasking demands of our daily lives, it trains the capacity to concentrate.
- *Literary reading* not only enhances reading skills (Jerrim and Moss, 2019; Wicht, *et al.*, 2021; OECD, 2021), but also narrative sophistication, perspective taking, breadth of vocabulary, cognitive patience, understanding of speech acts and metaphorical expressions, understanding of a wide range of social situations and attitudes, imagination, empathy, understanding of intertextual effects, confrontation with a wide array of choices for action etc. [5]. It deals with the entire range of literature, exposing readers to a wide variety of experiences and linguistic techniques.
- *Long-form reading* “is invaluable for a number of cognitive achievements, such as concentration, vocabulary building and memory” (E-READ, 2018; Baron, 2021). It trains readers’ concentration, confirms that sustained attention is worthwhile, and especially signals that there are questions of such complexity that they go far beyond brief text.
- *Slow reading* combines effects of all of the previous practices. It is a reading process that takes its time, for immersion and long-form reading, for conscious reflection on the reading process but also for repeated comprehension monitoring and re-reading as well as the discovery of several layers of meaning in a text — which can only be discovered by repeated reading and reflection over a sustained period of time, allowing for open-ended comprehension development beyond the obvious (Lacy, 2014; Mikics, 2013; Miedema, 2009; Mohrhard, 2018; Walker, 2017; Schüller-Zwierlein, 2017b).
- *Tenacious reading* is equally related to all of the foregoing types of reading (except immersive reading). It concerns two types tenacity. In the case of long-form reading it means being able to follow a single text through in all its complexity — “to persevere with long, difficult, challenging or confrontational reading experiences” [6]; Internet reading on the other hand requires the tenacity to keep one’s goal in mind in multimodal and hypertextual surroundings with lots of distractions.
- *Non-strategic reading* is of particular importance in an age of goal-oriented efficiency and habitual information searching. Not only does it go beyond “an instrumental attitude” [7] to reading — it goes beyond reading for “pleasure” or “leisure”. Non-strategic reading is a central element of personal development — allowing for new discoveries and new horizons as well as new goals for goal-oriented reading.
- *Reading as a challenge* is closely related to non-strategic reading: The widespread cliché that reading is either for information or for fun neglects the central fact that reading always means to be challenged to think.

The development and exercise of higher-level reading skills is effortful and necessarily stays that way throughout life; it is a life-long pursuit to hone them.

Naturally, our emphasis on higher-level reading skills is not intended to detract from the importance of teaching basic literacy skills to children. Not unlike Maslow’s (1943) hierarchy of needs, basic literacy

skills are the necessary foundation on which higher-level reading skills may be built. However, the basic decoding process should as much as possible be turned into a routine so that cognitive effort can be spent instead on a deeper and more sophisticated engagement with the text [8].

Why are higher-level reading skills and practices important?

In a general sense, enhanced reading activities — beyond decoding simple texts for practical purposes — have been associated with well-being, educational achievements, socio-economic status, social integration, reduced crime [9], mental health (Billington, 2019; Boyes, *et al.*, 2016) and even longevity (Bavishi, *et al.*, 2016; Rea, 2020). Furthermore, higher-level reading activities have been shown to improve and reinforce the development of linguistic competence, empathy, social cognition and perspective-taking [10], focus and attention, cognitive patience (concentration and discipline), our grasp of the complexity of humans and their predicaments, evaluating different points of view, knowledge beyond the immediate purpose, and, finally, creativity, imagination and mental imagery (Brosch, 2018). It is thus an indispensable mechanism for personal and cognitive development. For example, reading longer texts (101 pages or more) for school predicts significantly higher scores on the PISA reading test than reading shorter texts, after accounting for students' and schools' socio-economic profiles and students' gender [11].

Most importantly, however, as a form of textual engagement that goes well beyond decoding and the mere extraction of information, higher-level reading is central for critical thinking. Higher-level reading equips readers with the capacity to test different interpretational possibilities, finding patterns and unusual language in the text, detecting and differentiating different meanings, subtexts, contradictions, bias and hidden ideologies, detecting analogies and patterns and drawing inferences or connecting the text with other texts or cultural backgrounds. Higher-level reading skills have always been important, but to be able to negotiate the complexities of the information society they are more vital today than ever before. Without deep and critical engagement with the content and language of the text we are ill equipped to counter populist simplifications, fake news, conspiracy theories and disinformation, and thus vulnerable to manipulation. This seriously endangers society's capacity for informed democratic decision-making.

3. What is happening to reading?

We identify four major current influences that are detrimental to higher-level reading skills and practices.

A. Reading in a digital environment

Statistics indicate that the current media climate is not conducive to exercising and honing reading skills. We are not reading less overall, but certainly very differently. The bulk of people's reading now takes place on screens. In all their complexity and varying quality the digital media and the ubiquity of online services have come to dominate our cognitive environment, overshadowing the persistence and continuing use of other media (for instance, printed books still massively outsell e-books [Handley, 2019]). A variety of new reading situations (such as reading a tweet and re-tweeting it, or reading prompted by push-messages) have appeared, and existing reading processes are being adapted to the massive acceleration of our private and professional lives during the last decades and the corresponding time pressure. The immediacy and speed of the digital media favours the delivery of information in short chunks, fragmenting the reading experience.

The rapid rise of the digital media and online services has caused an increased reliance on reading as large swathes of daily life are being digitised, to a significant degree becoming dependent on digital text. As reading moves increasingly from paper to screens, it also moves into the sphere of influence of Big Tech, a very limited number of profit-driven companies that largely defy regulation and run the global digital media platforms. Big Tech is characterised by network effects and has thus led to a strong concentration of power. The lobbying activities and commercial interests of Big Tech make society vulnerable to a loss of social,

political and economic control. How these developments affect the nature (and quality) of our reading practices will be the chief focus in what follows.

In the digital environment the following specific challenges to higher-level reading practices may be identified:

1. *Competition to reading*: Apart from enabling different forms of reading, the expanding screen-based infrastructure also exposes the user to such alternatives to reading as audiobooks or films/movies/TV or streaming series. There are any number of platforms bent on catching and maintaining users' attention for as long as possible through the use of "hyperpalatable mental stimuli" (Crawford, 2015), offering many temptations not to read at all. Even many literate people increasingly choose not to read long-form text, using screen and other formats instead [12]. While these other formats may share some effects with reading, such as immersion, they hardly promote any of the other practices we have characterised above as higher-level reading practices.
2. *Multimodality*: Publishers as well as teachers are increasingly focusing on multimodal media. While print reading can also be multimodal to an extent, the digital environment has greatly enhanced the possibilities of integrating other modalities into reading media. This mixed media environment has much to offer, but it also tends to obscure functional differences between media, their specific advantages and disadvantages for the purpose at hand as well as the persisting uses of monomodal reading. The short- and long-term implications of the increasing use of multimodal and often hyperlinked texts are unknown. The relation of multimodal reading media to higher-level reading practices remains under-researched.
3. *Digital solutionism*: Equating digitisation with progress leads to "digital solutionism" in education. Digitisation often leads to an emphasis on the distribution of resources and technical access to information instead of the reading practices and higher-level reading skills themselves. Digital media are not by definition the answer to all pedagogical problems, including those associated with reading or learning to read. There are no shortcuts to learning to read. Digital solutionism often overlooks the multiplicity and vastly varying suitability of different digital media for different educational purposes (reading comprehension for instance is affected differently in different digital media; Freund, *et al.*, 2016). Moreover, it ignores the educational potential of print media, which are as diverse, and as diversely useful, as digital media.
4. *Digital literacy*: Many conceptions of "digital literacy" or "new literacies" (Coiro, *et al.*, 2008) mistakenly emphasise the technical handling of the various forms of digital media instead of focusing on the necessary reading practices and habits [13]. The very notion of "digital reading literacy" [14] is an over-simplification. While acknowledgement of the complexity and challenges of reading processes in the digital environment is helpful, there is no single digital reading literacy. We need to "systematically embrace and unpack a more complex definition" of reading processes involving digital media [15]. Use of the term "digital literacy" should not obscure that its foundation is still conventional reading skills.
5. *Screen inferiority*: The promotion of digital media is often prompted by notions of technical and economic progress as well as by the promise of financial gain. Such political and commercial motives hinder a level-headed and detailed analysis of the advantages and disadvantages of different media for different purposes, in spite of a large amount of scientific groundwork for such an analysis. Over the last two decades much research has been done on the effect of digital media on reading and learning processes. It has repeatedly been found that reading from screen continues to suffer from a "screen disadvantage" in various respects (Singer and Alexander, 2017; Delgado, *et al.*, 2018; Kong, *et al.*, 2018; Clinton, 2019; Haddock, *et al.*, 2020). Research shows for instance that texts read from screen are often taken less seriously than the same texts read from paper. The continuous practice of skimming reading in digital media tempers the reader's inclination — and may even compromise their ability — to engage in at least some higher-level reading practices. Conversely, lack of higher-

level reading practice compromises the efficacy of skimming reading. The screen disadvantage is likely to affect memory and retention (also because of the embodied cognition/extended mind issue; Newen, *et al.*, 2018). Moreover, the screen disadvantage is not a temporary condition. It has — perhaps counterintuitively — increased rather than decreased over the past 20 years (Delgado, *et al.*, 2018). To what extent the perceived effects are permanent, due to inherent features of the medium, or merely reflect contemporary reactions to currently available digital media, and whether the results apply to every digital medium in every situation, remains unclear. Moreover, we need to distinguish between (1) immediate, short-term (cognitive and emotional) effects of differences between the screen and paper reading substrates on the individual, and (2) indirect, longer-term effects of the digital infrastructure (notably Web 2.0) at large on individual reading habits and individual and social attitudes to reading. Indirect effects include the experience of digital text as ephemeral; the distraction caused by other screen-based activities; and the need for constant critical evaluation of all online text.

6. *The online environment*: It has long been recognized that “[t]he uncertain quality and expanding quantity of information pose large challenges for society. The sheer abundance of information will not in itself create a more informed citizenry without a complementary cluster of abilities necessary to use information effectively” [16]. That consumers are vulnerable due to low literacy is widely recognised as a major concern [17]. But the vulnerability of democracy due to lack of higher-level reading skills and practices is of equal importance. Digital media have promoted a turn away from reliable central sources of news and have facilitated the spread of unchecked claims [18]. Populist simplifications, fake news, conspiracy theories and systematic disinformation (Directorate-General for Communications Networks, Content and Technology, European Commission, 2018) spread via social media and other sources that are as easily found by search engines as more reliable news sources, endangering modern democracies (Directorate-General for Communications Networks, Content and Technology, European Commission, 2018; European Commission (EC), 2018, 2017; Singer and Brooking, 2018; Salovich and Rapp, 2021; Rapp, 2016). In response, a new concept of information literacy has been proposed, including such skills as “the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning” [19]. Reading skills, however, scarcely feature in accounts of information and media literacy, although the two fields are inextricably linked. PISA has acknowledged this by including multiple-documents literacy and sourcing into its assessment (OECD, 2019). Of equal importance as information literacy in the fight against fake news are depth and breadth of vocabulary and capacity for strategic, analytic and complex thinking. None of these can be acquired without higher-level reading.

B. Audiobooks

Audiobooks are a special case of competition to reading. Because they share the word “book” and a reliance on words alone, textual media and audio media seem to many people to be closely related — which in turn seems to suggest (as it does for many policy-makers) that one can be replaced by the other. In many respects listening and reading may indeed be regarded as different but equivalent ways to gain access to verbal content. However, there are also many dissimilarities between them. While many elements of auditive and visual verbal information are processed in a similar way, literacy prompts a network of neural activities that are not naturally connected in the human brain (Wolf, 2018). Psychological studies that seem to show that the “representation” of “semantic information” is the same in listening and reading (*e.g.*, Deniz, *et al.*, 2019) are based on a simplified model of semantic information that itself is based on a model of decoding instead of a more complex view of interaction and engagement with linguistic utterances. A more complex view shows listening and reading to be cognitively different activities, with different mental affordances (McClelland, 2020). Much less research has been published on differences between reading and listening than on differences between reading from paper and reading from screens. Some significant differences on which more research remains to be done include the following:

1. Perhaps the most obviously significant distinction between reading and listening is that because no decoding process of textual symbols is involved, listening does not require — and thus does not train

— literacy. Audiobooks represent a return to orality, which has very different characteristics than literacy (Ong, 1982).

2. Another difference is that listening cedes part of the interpretation of the text to the narrator. This leaves less space for different interpretations and meaning-making. The voicing is pre-determined, so the hard work of reading (the active process of placing emphasis, imposing rhythmicality, supplying intonation etc.) is replaced by a ready-made product. A reader, by contrast, has to do that work herself, as the alphabetic code does not indicate intonation or pitch. Enacting a multitude of voices activates other networks in the brain.
3. Audio content lacks the typographic structure markers of print, such as pagination, font variations, footnotes and chapters. Owing to this, and to the continuous nature of audio, listening makes it harder to navigate back and forth in a text and makes it more difficult to compare texts as well as to monitor comprehension by going back to check. This lack of monitoring has the potential for diminishing attention, comprehension and memory. The transitory is not remembered as well as when we pause to reflect. A reduction of reflection, in turn, means less cognitive activity on the listener's part — less network activation. The notation on the printed page provides a pause for reflection and a greater opportunity for consolidation in memory.
4. Listening imposes a fixed speed, ignoring the temporal complexity of reading as meaning-making, and thus hindering critical engagement. Written language, by contrast, “allows readers to control the rate of processing, and minimizes demands on working memory by allowing readers to reread parts of the sentence that were problematic” [20]. The material engagement allows the reader to control the pace and thus to modulate attention in various ways (stopping, thinking, skipping etc.).
5. The lack of material engagement and physical affordances — tactility, scent, weight, movement, handling — compromises memory and attention.
6. Being more passive and pre-designed than reading, listening gives more opportunity for distraction (Varao-Sousa, *et al.*, 2013).
7. Lastly, and most importantly, listening does not appear to train any of the critical higher-level cognitive capacities that we have described. Nor is it likely to foster cognitive patience, which we identified earlier as an unintended but highly prized effect of (especially long-form) reading.

All this is by no means to suggest that listening is inferior to reading. One potential strength of listening in particular is its remedial use in situations involving low literacy (Bastemeijer, 2021). It may, for example, be very effectively used to boost the motivation of less skilled readers. There is a high educational value in combining text and audio, especially for some learners [21], as reading-while-listening (Conklin, *et al.*, 2020) or paired/assisted reading: audiobooks can be an integral part of a literacy programme. Particularly for those who suffer from various reading weaknesses like dyslexia audiobooks can give a great boost to the acquisition of conceptual knowledge. Also, audiobooks are simply a great source of entertainment.

Still, it is sufficiently clear that listening must not be adopted uncritically in educational policy as a substitute for reading, particularly because listening does not train the higher-level abilities mentioned earlier. The potential impact on our literate society of an increasing use of audio media (or audio-video combinations) and a corresponding decrease in reading may be larger than we might surmise.

Having said this, binary listening vs. reading debates are as unhelpful as binary screen vs. paper debates. Higher-level reading practices maintain their importance regardless of the reading environment and the challenges posed by screen reading and audiobooks. Undue focus on the reading medium carries the danger of deflecting us from the reader and the purpose of reading. Each medium or modality has its own set of affordances, with its own peculiar strengths and weaknesses. Accordingly, its value can only be judged with regard to its use for a certain purpose, not absolutely. Political efforts as well as scholarly studies should focus on the advantages and disadvantages of the use of specific media in specific cognitive processes for

specific groups. The challenges mentioned earlier necessitate a clear and analytic view, unbiased by economic considerations, lobbying by commercial interests or scholarly fashion.

C. Text simplification

In the face of competition from other modalities that offer faster and easier access to information, the complexity of reading is often regarded as a problem to be solved rather than as a natural and desirable consequence of the expressive richness of human language. Thus the prevailing propensity for efficiency and functionality stimulated by economic and technological development has produced a noticeable tendency towards text simplification in many contexts. The Web as an environment places a premium on shorter, simpler text. The vision of machine translatability, “machine translation literacy” [22] and “translation-friendly writing” [23] equally encourages a simplification and standardization of vocabulary and structure. Text simplification has correspondingly turned into a large research area (Sikka and Mago, 2020; Štajnertajner and Saggion, 2018; Elguendouze, 2020; van den Bercken, *et al.*, 2019; Xu, *et al.*, 2015). Simplified texts are also opening up new markets for publishers. In education, long and complex texts are often replaced by shorter and simpler texts as well as by audiovisual material such as videos and podcasts (Common Core State Standards Initiative, n.d.; Baron, 2021), even in typically reading-intensive disciplines in higher education, such as history and literary studies (Baron and Mangen, 2021).

Simplified language may certainly be useful and necessary for specific purposes, *e.g.*, in the medical realm (Daraz, *et al.*, 2018; Simas da Rocha, *et al.*, 2021; Tegethoff, 2019; Hillyer, *et al.*, 2020), as a didactic tool (such as for children’s early literacy education), or in the case of audiences with low literacy. Simplification may tax readers less, but it also seriously limits the potential of texts to express the complexity of text-based human interaction; it disables a nuanced communication respectful of detail and of different views; and it limits the perception of the fact that signs of any kind can be interpreted variously, which is central to intercultural understanding. Simplification carries the danger of promoting populism and simplified views of complex situations and identities. It enhances the danger of misinformation, in the political as well as in the medical realm (Scharrer, *et al.*, 2019, 2017). Lastly, while simplified texts may be helpful in “translating” information for broader consumption, they do not sufficiently train the higher-level skills that foster critical thinking, which is essential for interpreting any kind of complex information.

D. Focus on basic skills, strategic and informational reading in reading education

The OECD Programme for International Student Assessment (PISA) is a remarkable achievement that has established an international standard of literacy assessment. It has regularly updated its methods of reading assessment, adapting to the digital environment and adding important dimensions such as multiple-documents literacy and sourcing, task management and self-regulation (OECD, 2018), non-continuous and multimodal reading [24] as well as aspects of critical reading [25], text evaluation and metacognition [26]. It has expanded its definition of reading literacy to include “understanding, using, evaluating, reflecting on and engaging with texts in order to achieve one’s goals, to develop one’s knowledge and potential and to participate in society” [27]. Of similar significance is the OECD Programme for the International Assessment of Adult Competencies (PIAAC) that has likewise established an international standard of literacy assessment and put it into regular practice, equally adapting its approach to digital reading situations.

PISA and PIAAC have had remarkable success in being accepted as a basis for educational policy-making and monitoring. However, despite being under constant development, they fail to address a series of crucial aspects connected to higher-level reading, a limitation of scope they share with other current assessments and studies:

1. *Basic skills*: PISA focuses on adolescents and on reading as a purely functional skill [28] that is part of basic education. It does not take into account the crucial social significance of higher reading skills and practices in later life. It does not address life-long learning or reading for personal or professional development. It conceptualizes parts of critical reading and conscious reading, but it does not include

most of the skills and practices characterized above as higher-level reading practices. Studies on adult literacy widely share this lacuna, most often focusing on low literacy (Buddeberg, *et al.*, 2020; Grotlüschen, *et al.*, 2019; Perin, 2019) and practical reading situations involving factual information (PIAAC shares much of PISA's methodology; OECD, 2019; OECD, n.d.b).

2. *Instrumental reading*: The recent focus on reading strategies as an important aid to reading (Philipp, 2015; Serravallo, 2015), while shedding light on central aspects of conscious reading, has also led to the dominance of an exclusively goal-oriented, instrumental view of reading that is reflected in research [29] as much as in assessment. As PISA states: "Reading is a purposeful act that occurs within the context of particular reader goals" [30], and PIAAC: "literacy is conceived as a skill that involves constructing meaning, and evaluating and using texts to achieve a range of possible goals in a variety of contexts" [31]. Skilled reading, according to PISA, thus "requires students to know and employ strategies in order to make the best use of text given their purposes and goals" [32]. Reading 'as a cognitive skill' is said to involve "a set of specific reading processes that competent readers make use of when engaging with texts in order to achieve their goals. Goal setting and goal achievement drive not only readers' decisions to engage with texts, their selection of texts and passages of text, but also their decisions to disengage from a particular text, to reengage with a different text, to compare and to integrate information across multiple texts" [33]. Approaches such as these — promoting a purely functional, strategic view of reading that focuses on reading as a tool [34] for problem-solving [35] and "success" in economic and social-political life [36] — are much too narrow. They fail to address crucial higher-level reading practices, such as slow reading, non-strategic reading, literary reading and long-form reading for its own sake.

Also, the instrumental perspective of PIAAC and PISA with its task-based assessment methods fails to capture habitual reading practices. While PISA includes some rudimentary data on reading behaviour, motivation and enjoyment [37], the PISA results do not include enough information on text usage and especially on the higher-level reading habits and practices that contribute to sophisticated thinking, the ability to concentrate, and mental health. The few results in this dimension point to a clear decline in the practice of reading as a challenge or even as a leisure-time pursuit.

3. *Informational reading*: While PISA acknowledges the fact that reading goes beyond information extraction [38], it still mainly focuses on the use of information from factual texts: "The PISA framework for assessing the reading literacy of students towards the end of compulsory education [...] must focus on reading literacy skills that include finding, selecting, interpreting, integrating and evaluating information from the full range of texts" [39]. Its highest level of reading proficiency — Level 6 — indicates that readers are able to "set up elaborate plans in order to achieve a particular goal with the text(s). Readers at Level 6 can comprehend lengthy and abstract texts in which the information of interest is deeply embedded and only indirectly related to the task. They can compare, contrast and integrate information representing multiple and potentially conflicting perspectives, using multiple criteria and generating inferences across distant pieces of information to determine how the information may be used" [40]. This focus on "key information-processing competencies" [41] is shared by PIAAC, in spite of a potentially wider definition of literacy [42] and a slightly more demanding definition of the highest level of reading skills [43]. In a digital environment that supports disinformation and fake news to an unprecedented degree [44], both multi-document literacy and awareness of the issue information quality are both very important. However, the almost exclusive focus on informational reading [45] leaves out of consideration many other important higher-level reading skills and practices, such as slow reading, non-strategic reading, literary reading and long-form reading.

Of course, not all higher-level reading skills and practices readily lend themselves to standardised testing. Nevertheless, educational policy should not be based exclusively on what can at present be measured by standardised testing. By focusing predominantly on functional, informational aspects of reading, we lose sight of the importance of higher-level reading for critical, complex and strategic thinking.

4. What measures do we propose?

As a matter of social and individual human welfare reading requires effective government policy. For this we need a differentiated diagnosis of the state of reading in contemporary society. This diagnosis should cover more than the standardized assessment of adolescents (such as PISA; OECD, 2019) that has formed the basis of many judgments on reading in the past decade. A comprehensive assessment needs to cover adult literacies and reading practices, too.

All policy-making needs to be based, not only on an awareness of the intrinsic value of reading as a fundamental, life- and society-shaping capability, but as much as possible also on wide-ranging solid empirical knowledge about reading. As we have seen, reading covers a broad set of textual practices. It is necessary to chart and analyse the development of reading skills across this full set of practices — also in developed countries [46]. To create a foundation for good policy-making all research and assessment need to be transdisciplinary and transnational. In this ambition we face three challenges:

- Firstly, *we still lack theoretical perspectives and empirical tools* to enable us to identify and assess the achievement of reading in its full breadth, let alone understand its political implications.
- Secondly, *we lack empirical data*. While assessment of basic skills and low literacy has developed in the past two decades, there is not enough information on Higher-Level Reading practices and their role in society.
- Thirdly, *we lack a long-term reading education strategy*, not just focused on basic reading skills, but also acknowledging the need to instil Higher-Level Reading skills to foster a healthy democracy.

We propose to meet these three challenges through the following three sets of concrete recommendations towards a comprehensive reading policy.

A. Reading research

For new theoretical perspectives and empirical tools we need to turn to reading research. We would be looking for:

1. *A broader interdisciplinary view*: Analysing reading as part of a wide set of textual practices requires interdisciplinary dialogue between reading researchers, teachers and practitioners in different fields. A fuller view depends on combining and integrating the perspectives of such diverse fields as information behaviour research (Fisher, *et al.*, 2005; Wilson, 2010; Greifeneder, 2014; Nahl and Bilal, 2007; Schüller-Zwierlein, 2017b), book market research, information literacy teaching (Association of College and Research Libraries [ACRL], 2015), data literacy teaching, literacy teaching, concentration and attention research, book design, usability research, psychology, neuroscience, sociology and library services design.
2. *Better integration of research*: All too often researchers addressing the same topic produce results that cannot fruitfully be compared with other researchers' results. Even within a single field or subfield, current reading research suffers from fragmentation and heterogeneity. This can be addressed by harmonising terminology and concepts as well as systematising methods, empirical settings and research goals, and by setting up a concerted, consistent research programme with a corresponding spectrum of methodologies. Additionally, periodical or even living systematic reviews as well as evaluative syntheses of results from qualitative and quantitative research would be helpful.
3. *Prioritising reading goals over reading media*: A binary stance in reading research (screen vs paper or reading vs listening) needs to be replaced by a more balanced and analytical view of the various practices and media affordances. Analysis and evaluation of media use should focus on well-defined

contexts (*i.e.*, specific purposes and audiences; Mizrachi and Salaz, 2020, Mizrachi, *et al.*, 2018; see also Coiro, *et al.*, 2008).

4. *Broadening the reading research focus*: Reading research needs to go beyond basic functional and informational reading skills and concern itself with reading practices in general, including higher-level reading practices. This includes taking into account “indicators beyond the medium of text delivery that are likely to influence comprehension processes” [47], such as affective or aesthetic processes [48], and building on PISA’s analysis of motivation and enjoyment.
5. *Establishing structures for longitudinal studies*: In order to examine longer-term effects, longitudinal studies are needed. In addition to studies covering entire populations, there is a need for the longitudinal developmental study of individuals, of larger and smaller social groups over the course of a lifetime.
6. *Studying the intended and unintended effects of higher-level reading skills*: This includes individual [49] and longer-term social effects. Beyond general surveys on higher-level reading practices, future research efforts should for instance focus on strategies to aid higher-level reading processes in the design of digital and print media (E-READ, 2018). Some higher-level reading skills may be specific to paper or digital contexts (McLean, 2020). While the individual and social effects of low literacy are well studied, the same cannot be said of the effects of a lack of higher-level reading skills. This is especially relevant for understanding the relationship between reading skills and populism, discrimination, misinformation and fake news, as well as of social harmony.

B. Reading assessment and data

To obtain better data on which to base reading policy we need to:

1. *Assess the state of reading in today’s societies with regard to practices and habits as well as skills*: The social significance of reading goes beyond its functional role. Therefore, a full diagnosis of the state of reading in today’s societies cannot be restricted to practical decoding and information-based skills measurable in tests. While the ability to pick up valid information from (multiple) texts is a valuable one, to assess the state of reading in today’s societies we need to gain a deeper understanding of the entire spectrum of reading practices and habits. This includes time spent on slow, immersive, literary and long-form reading as well as uninterrupted and non-strategic reading. Time-related parameters are important here, because higher-level reading needs time and because such parameters reflect clearly on the chronopolitical practices in today’s societies and on their cognitive and social consequences (Rosa, 2005).
2. *Assess higher-level reading skills and practices in the adult population as well as in schools*: Such assessment can build on the efforts of PIAAC and PISA in the field of higher-level reading skills, such as the newly developed focus on multiple-document literacy and sourcing. In addition to the time-based parameters already mentioned, including slow reading practices such as re-reading, it should also examine the practices of non-strategic reading and reading as a challenge. This could be achieved initially by expanding and refining the existing concept of “engaging with texts” used by PISA and PIAAC [50]. Standardized testing needs to be supplemented by qualitative and descriptive data.
3. *Integrate reading statistics from various sources*: The current fragmentation of data prevents a clear picture of the changing role of reading in European societies. Instead we would need a single aggregation or dashboard. In addition to existing literacy data from various sources this would have to include statistical data from, for instance, publishing, bookselling and libraries (Kovač, *et al.*, 2019; Kovač and van der Weel, 2018; Gerčar and van der Weel, forthcoming) as much as data from information behaviour research, book market research, information literacy teaching, concentration and attention research. We propose to adopt the concept of reading health and an accompanying Reading Health Index (Gerčar and van der Weel, forthcoming) as a useful instrument to monitor

reading skills and reading habits in European societies and to properly understand changes in the reading landscape. The Reading Health Index is designed to supplement the collection of existing data by additional national and international surveys on reading habits and practices. The dashboard should also include additional information on reading assessment, such as summaries of the latest in reading research or information on new assessment tools and technologies [51]. In order to achieve this goal, we propose the establishment of a European reading observatory.

C. Reading education

A long-term strategy of reading education should take into account:

1. *Complexity*: The first goal of future reading education should be a solid understanding of the complexity of reading — as a multitude of different processes in different media and situations, with different goals and effects, dealing with cognitively and linguistically complex, often multimodal, material that requires not only information uptake but a grasp of human complexity, perspective taking and empathy.
2. *All modes of reading*: Accordingly, building up from the acquisition of foundational practical decoding skills, all modes and varieties of reading (including all higher-level reading skills and practices listed earlier) should be taught, along with an awareness that there are always many modes of reading to choose between [52].
3. *Differentiating media use*: Different media have different affordances, different advantages and disadvantages for different purposes. Students need to have a good working knowledge of what reading medium to use for what purpose. This includes the persisting uses of print, since some forms of higher-level reading may be taught best on paper [53]. No prior differentiated knowledge of affordances, mechanisms and advantages can be expected (also not from so-called “digital natives”).
4. *Media literacy and information literacy*: To help them combat the effects of populism, fake news and disinformation and to reduce their vulnerability to disinformation and conspiracy theories, students should be made aware of the constant need to evaluate all texts by learning to recognise “source credibility cues” [54] and paratextual cues. Higher-level reading skills urgently need to be included in the EU’s Digital Education Action Plan [55] and its Digital Competence Framework for Citizens (European Commission [EC], 2017).
5. *Practices*: Reading education should aim at establishing reading routines and practices. A better reading routine improves the inclination to read and enhances readerly self-confidence and the enjoyment of reading, and thus the ability to engage in higher-level reading practices. Since the amount of reading short digital texts, particularly on social media, is found to be negatively correlated with reading comprehension (Duncan, *et al.*, 2015; Pfost, *et al.*, 2013) and, more broadly, with academic performance, teaching practices should also include time management and self-regulation, in particular of multi-tasking. Reading education should also be linked to related practices such as (academic) writing (Graham, 2020).
6. *Higher-level reading*: Beyond strategic reading, higher-level reading skills and practices should be an important part of the curriculum, including a deeper understanding that reading is effortful, that digital technologies will not make it less so, and that higher-level reading practices have beneficial effects on the individual brain and on society. This should include teaching techniques of higher-level reading in a digital environment (Wild and Glondys, 2020; E-READ, 2018). Teaching to read should not restrict itself to what is currently measured in standardized testing.
7. *Dialogue between research and educators*: The growing complexity of reading processes requires an intensified dialogue between educators and researchers from different disciplines.
8. *Life-long literacy education*: It is not sufficient to understand reading as a tool for life-long learning


[56]; deepening and expanding one's reading skills is a life-long process and an aim in itself. Reading education needs to continue even at university level (e.g., Henry-Huthmacher and Hoffmann, 2016; Minguela, *et al.*, 2015). In other words, it needs to address individuals of every age, also in informal contexts via systematic reading promotion.

9. *Reading spaces*: Public reading spaces are needed to support formal and informal reading education beyond school level and to make reading visible as a social practice. Libraries remain the best spaces for this purpose. As the only reading centres of today's society (Schüller-Zwierlein, 2017a) they are unique spaces reserved for concentrated reading, life-long learning and social reading processes. If anything, the need for public reading spaces is growing in an increasingly digital environment.
10. *Higher education institutions as well as public education institutions should integrate higher-level reading skills into their curricula*: A healthy society needs multiple points of contact to acquire and develop reading skills over the individual's lifetime.



5. The future of reading

Reading is pivotal to human culture. It is not a peripheral skill to be delegated to education departments and primary schools. The practice of reading is a deeply transformative form of culture, shaping the way individuals think and interact, and, correspondingly, the way society is ordered. It concerns individuals of every age. As a fundamental capability, reading skills are part of human welfare and are necessary for human development and mutual understanding. Reading skills and practices are “the foundation for full participation in the economic, political, communal and cultural life of contemporary society”, including “social, cultural and political engagement” as much as “personal liberation, emancipation and empowerment” [57]. A healthy democratic society that focuses on the informed consensus of a multi-stakeholder and multi-cultural society requires resilient readers (Douglas, *et al.*, 2016), well-versed in the practices of higher-level reading. It needs to appreciate that reading is our culture's central training technique for cognitive and social behaviour and a precondition for a properly functioning democracy.

In recognition of this crucial role in society, we cannot leave the future of reading in the hands of commercial interests and the vicissitudes of technological advancement. What we need instead is concerted policies to make sure that future reading education will enable reading habits and practices to match the pivotal role of reading. All policy making that involves reading needs to be based on an awareness of this intrinsic value of reading, but also on wide-ranging solid empirical knowledge about reading. In order to understand its role and impact on contemporary societies, it is important to chart and analyse the development of reading skills, and to invest in further reading research, including especially of higher-level reading and how to teach it. For “War is what happens when language fails” [58]. 

About the authors

André Schüller-Zwierlein is Director of Regensburg University Library. He has published widely on reading, cultural heritage, information justice, library philosophy and practice. His latest book is *Die Fragilität des Zugangs* (Berlin: de Gruyter 2021), a philosophical critique of the information society. E-mail: Andre [dot] Schueller-Zwierlein [at] bibliothek.uni-regensburg [dot] de

Anne Mangen is Professor of Literacy at the Norwegian Reading Centre, at the University of Stavanger, Norway. Her research focuses on the role of medium materiality for reading comprehension and engagement. Mangen was Chair for the European research network (COST Action) E-READ: Evolution of Reading in the Age of Digitisation (2014–2018).

E-mail: anne [dot] mangel [at] uis [dot] no

Miha Kovač is Professor of Publishing Studies at the University of Ljubljana. His main research interests are book statistics and book reading. In his publishing career he worked as editorial director in the two largest Slovene publishing houses and as an editorial director of the Slovene edition of *National Geographic Magazine*.

E-mail: Mihael [dot] Kovac [at] ff [dot] uni-lj [dot] si

Adriaan van der Weel is Professor Emeritus of Book Studies at Leiden University. His research focuses on the digital revolution and its consequences for reading. Van der Weel was vice-chair of E-READ. His most recent book, co-authored with Ruud Hisgen, is *The Reading Human (De lezende mens; Amsterdam: Atlas Contact, 2022)*.

E-mail: A [dot] H [dot] van [dot] der [dot] Weel [at] hum [dot] leidenuniv [dot] nl

Notes

[1](#). For example, 12,1 percent of German adults have low literacy, plus another 20,5 percent have noticeable difficulties spelling (Buddeberg, *et al.*, 2020; Grotlüschenm, *et al.*, 2019). “16.4 percent of adults in England, or 7.1 million people, can be described as having ‘very poor literacy skills.’ [...] 1 in 4 (26.7 percent/931,000 people) adults in Scotland experience challenges due to their lack of literacy skills.” (Literacy Trust, n.d.); “21 percent of adults in the United States (about 43 million) fall into the illiterate/functionally illiterate category” (Rea, 2020). See also Perin (2019).

[2](#). OECD, 2019, p. 12.

[3](#). In recent writing, the term “deep reading” has been used to describe a number of advanced reading skills: “By deep reading, we mean the array of sophisticated processes that propel comprehension and that include inferential and deductive reasoning, analogical skills, critical analysis, reflection, and insight” (Wolf and Barzillai, 2009; see also Wolf, 2018; Rosebrock, 2020). However, use of the term has been rather vague.

[4](#). Ackerman and Goldsmith, 2011; Barzilai and Ka’adan, 2017; OECD, 2019, p. 31.

[5](#). *E.g.*, Leverage, *et al.*, 2011; Zunshine, 2006; Keen, 2007; Worth, 2017; Wolf, 2018, pp. 42–53; Castano, *et al.*, 2020; Dodell-Feder and Tamir, 2018; Mumper and Gerrig, 2017; Hartung and Willems, 2020.

[6](#). Douglas, *et al.*, 2016, p. 259.

[7](#). Attridge, 2004, p. 7.

[8](#). Reiss, *et al.*, 2019, p. 26.

[9](#). OECD, 2018, p. 10; see also Rea, 2020.

[10](#). *E.g.*, Leverage, *et al.*, 2010; Zunshine, 2006; Keen, 2007; Worth, 2017; Wolf, 2018, pp. 42–53; Castano, *et al.*, 2020; Dodell-Feder and Tamir, 2018; Mumper and Gerrig, 2017; Hartung and Willems, 2020.

[11](#). OECD, 2021, p. 120.

[12](#). Rose, 2013; see also Schleicher, 2019, p. 14; Poletti, *et al.*, 2016.

[13](#). Law, *et al.* (2018), for instance, does not even really include reading among those digital literacy skills.

[14](#). OECD, 2019, pp. 6ff.

15. Coiro, *et al.*, 2008, p. 18; see also Spante, *et al.*, 2018; Pangrazio, *et al.*, 2020.
16. Association of College and Research Libraries (ACRL), 2000, p. 2.
17. Castles, *et al.*, 2018, p. 5; Rea, 2020; see also Stewart and Yap, 2020.
18. Directorate-General for Communications Networks, Content and Technology, European Commission, 2018, p. 5.
19. Association of College and Research Libraries (ACRL), 2015, p. 8.
20. Michael, *et al.*, 2001, p. 240.
21. Including adults; Baron, 2021, pp. 175ff.
22. Bowker and Ciro, 2019, p. 88.
23. Bowker and Ciro, 2019, pp. 55ff., 90–91.
24. “In a broad definition, by ‘texts’ it refers to continuous texts, consisting of sentences and paragraphs, as well as to non-continuous modes of presentation such as charts, diagrams, pictures, or similar, with linguistic content that can be combined as mixed texts. This relatively broad definition of the term text necessitates a broad definition of reading skills that is not restricted continuous texts. Non-continuous and mixed texts especially require comprehensive reading skills that go beyond the processing of written language” (Reiss, *et al.*, 2019, p. 23; translated by André Schüller-Zwierlein).
25. “Reading is no longer mainly about extracting information; it is about constructing knowledge, thinking critically and making well-founded judgements” (Schleicher, 2019, p. 14).
26. “‘Reading’ is often understood as simply decoding, or even reading aloud, whereas the intention of this survey is to measure much broader and more encompassing constructs. Reading literacy includes a wide range of cognitive and linguistic competencies, from basic decoding to knowledge of words, grammar and larger linguistic and textual structures for comprehension, as well as integration of meaning with one’s knowledge about the world. It also includes metacognitive competencies: the awareness of and ability to use a variety of appropriate strategies when processing texts. Metacognitive competencies are activated when readers think about, monitor and adjust their reading activity for a particular goal” (OECD, 2019, p. 9).
27. OECD, 2019, p. 8.
28. “It understands the central and basic skills in the sense of so-called ‘literacy’ as a functional basic education. In this way, it includes and emphasizes the application of knowledge for the adolescents’ present and future life on the one hand, and the applicability for continuous learning over the life-span on the other” (Reiss, *et al.*, 2019, p. 15; translated by André Schüller-Zwierlein).
29. Coiro, *et al.*, 2008, p. 10.
30. OECD, 2019, p. 21.
31. OECD, 2019, p. 19.
32. OECD, 2019, pp. 32, 9; see also Reiss, *et al.*, 2019, p. 21.
33. OECD, 2019, p. 13.

- [34.](#) Reiss, *et al.*, 2019, p. 23.
- [35.](#) Britt, *et al.*, 2017; OECD, n.d.a, I, p. 91.
- [36.](#) OECD, 2019, p. 3.
- [37.](#) Reiss, *et al.*, 2019, pp. 84ff.
- [38.](#) Schleicher, 2019, p. 14.
- [39.](#) OECD, 2019, p. 3.
- [40.](#) OECD, n.d.a, I, p. 93.
- [41.](#) OECD, 2019, p. 16.
- [42.](#) OECD, 2019, p. 18.
- [43.](#) OECD, 2019, p. 74.
- [44.](#) Schleicher, 2019, p. 14.
- [45.](#) OECD, 2019, p. 4.
- [46.](#) Sen, 1999, p. 6.
- [47.](#) Coiro, *et al.*, 2008, p. 10.
- [48.](#) Jacobs, 2015, p. 14; see also Nahl and Bilal, 2007.
- [49.](#) *E.g.*, discipline, attention and concentration; *e.g.*, Lavie, *et al.*, 2014; Hayles, 2007, p. 187.
- [50.](#) OECD, 2019, pp. 8–10.
- [51.](#) Coiro, *et al.*, 2008, p. 17.
- [52.](#) *Cf.*, OECD, 2019, p. 6.
- [53.](#) Rosebrock, 2020, p. 12.
- [54.](#) Scharrer and Salmerón, 2016, p. 1,541.
- [55.](#) https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en.
- [56.](#) OECD, 2019, p. 8.
- [57.](#) OECD, 2019, p. 10.
- [58.](#) Atwood, 1993, p. 43.

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