

Reading shreds beyond pandemic. A critical-reflective analysis of reading in the digital era

Paolo Bonafede

University of Trento

Abstract

In recent years, with the temporal distortions produced by the pandemic, distance learning has emerged as an emerging, temporary and partial solution, thanks to new technologies. In the digital era, the relationship between learning and technological devices is worthy of investigation. Studies on changes in cognitive processes (reading and memory) deriving in part from the habit of persistent use of ICT raise questions about the school of the future.

In this paper, we want to explore the role that deep reading takes on in the hyper-accelerated context of digital contemporaneity, in which reading has been fragmented. Starting from philosophical references (Braidotti, Floridi, Stiegler), the contribution intends to expand theoretically Maryanne Wolf's proposal on the need for bi-literacy (alphabetic and digital) as a key to today's education.

Negli ultimi anni, con le distorsioni temporali prodotte dalla pandemia, la didattica a distanza (DaD o DDi) è emersa come una soluzione temporanea e parziale, grazie alle nuove tecnologie. Nell'era digitale il rapporto tra apprendimento e dispositivi tecnologici è oggetto di ricerca. Gli studi sui cambiamenti nei processi cognitivi (lettura e memoria) derivanti in parte dall'abitudine all'uso persistente delle TIC, sollevano interrogativi sulla scuola del futuro.

Con questo contributo si vuole esplorare il ruolo che la lettura profonda assume nel contesto iperaccelerato della contemporaneità digitale, in cui la lettura è stata frammentata. Partendo da riferimenti filosofici (Braidotti, Floridi, Stiegler), il contributo intende ampliare teoricamente la proposta di Maryanne Wolf sulla necessità della bi-alfabetizzazione (alfabetica e digitale) come chiave per l'educazione odierna.

Keywords: media education; philosophy of education; reading; bi-literacy; school

Parole chiave: educazione ai media; filosofia dell'educazione; lettura; doppia alfabetizzazione; scuola

1. Suspension and acceleration: Convergences and gaps in school and society

The pandemic has highlighted an ambivalent temporal distortion – acceleration and suspension – in contemporary society. In the so-called “society of acceleration” – as Hartmut Rosa defined in his work, *Acceleration and alienation* (Rosa, 2010) – the virus acted as an ambivalent environmental factor (Bonafede, 2021).

The time of multiple lockdowns, as we have experienced in our countries (COVID-19 GRT University of Oxford, 2022) has allowed us to experience an accidental structural slowdown, a suspension from the normality of contracted time that daily life has taken on as a hegemonic style of collective life (Lubbë, 2009) However, it was only a partial sensation: the frenzy dictated by smart working, daily web conferences and the acrobatic disentanglement between work and leisure time, further increased the sense of urgency (Bonafede, 2021). So that same time did not allow the unfolding of an Augustinian *distensio animi*, because it was precisely the forced isolation that brought out the unavoidable and disruptive presence of digital devices as factors of maintenance of those work and life rhythms devoted to acceleration. Among the realities involved, this situation of double and paradoxical temporal distortion was intensified in schooling. The frantic research for an adequate technological adaptation of educational provision, which involved teachers, students and families during pandemic, has produced wavering results (Bonafede, 2021). In Italy, the national context explored in this paper, the school, facing the emergency, found itself not equipped for distance teaching (CENSIS, 2020; ISTAT 2022).

The results are not different if we consider the EU globally. I refer to the research, commissioned by JRC Science for Policy Report of European Commission, the title of which is ‘What did we learn from schooling practices during the COVID-19 lockdown?’ (2021). In this research around 150 key stakeholders were interviewed. These stakeholders came from five Member States that represent different degrees of readiness to use digital technologies in education (students, teachers, parents, and other people). In this way, it is simple to obtain different perspectives about the remote schooling experience by collecting insights from various groups, namely students, parents, teachers and school leaders.

The results of the study show that full-time remote education with the current state of infrastructure and accessibility of equipment aggravated existing inequalities, especially for some groups of children who were prevented from attending classes delivered online. Other recent studies, like the one proposed by the World Bank of Education (2020) show that distance learning increases the potential learning gap between students. The fear of creating new distances between Gianni and Pierino (Milani, 1967) is linked to the use and accessibility of new digital tools (digital divide), as well as the need to see them integrated and coextensive with the learning of European key competencies (EU, 2018), especially with reading literacy, which is the basis of learning (Batini, 2021). In fact, in the formation of reading literacy, we find all those processes of understanding, conceptualization, and integration of information with previous notions, which lead to the preservation in memory of new knowledge (Bianchi, Rossi & Sini, 2016).

On these grounds, the school situation is like the classic “tip of the iceberg” in a complex learning change of all society, related to human interactions with ICT (Buckingham, 2019).

For sure the ineluctability of digital technologies in our lives delivers the dialogical need to rethink from an educational standpoint the technical-media dimension that intercepts and modifies the horizon of education and learning for all human beings (Bonafede, 2021). This non-neutrality of technology leads first to the question of how, i.e. what changes are taking place. Starting from these assumptions, we intend to verify the interactions between human beings and ICT that occur in learning processes, and in particular in reading. There are several questions concerning the transformations of reading, which are based on the changes in cognitive processes operated, at least in part, by the habit of persistent use of ICT (Dehaene, 2009; Wandell & Yeatman, 2013; Baron, 2014). Secondly, we need to understand whether these modifications are changing the way we are human

beings, reducing our ability to read and thus interact critically between us, with the alphabetic-narrative component of our intelligence. Finally, if this is the case, we need to investigate what can be done at an educational level to be able to maintain our reading skills in the digital context.

We try to give partial and possible answers to these questions, by synthesising philosophical perspectives with some approaches drawn from human sciences. The analysis of reality – in this case the reality of reading processes and their transformation – is absorbed as a circumstantial paradigm within a speculative approach, through which a problematic tension is established with the set of data (Ulin, 2010; Wolf, 2018; OECD-Pisa, 2019) to analyze the question and verify the possible answers. In this sense, the data are presented in their phenomenal-descriptive nature to be overcome – in the perspective of limited rationality – in the direction of a theoretical reconfiguration of the phenomenon of reading, represented by the educational proposal at the end of the contribution (Bonafede, 2021).

Therefore, the methodological criterion used is – using a French expression – “remettre en question”, adopting the fatigue and rigour of the concept to try to penetrate the fragmented complexity of the present observing in blacklight the essential fibres of our daily life experience (Conte, 2016). In this scenario, it is necessary to present the theoretical assumptions about the role of ICT in Education. Starting from them, it is possible to understand the other reflections concerning reading.

2. Theoretical assumptions in Human-Computer interactions

First of all, in today's relationship between man and technology, we are seeing new forms of relationality: with ICT we can't assume an anthropocentric gaze (Latour, 2009): we can't conceptualize the world as the exclusive space of the *anthròpos* – in which *technè* is an instrument controlled and dependent on a human being - but it is a world co-inhabited by men and machines. Both of them can be considered acting beings characterized by a symbiotic and interdependent relationship (Haraway, 1985). We speak of symbiosis because there is reciprocity: the machine does not exist without the human being, but the latter can no longer live without digital devices.

The concept of symbiotic relation is suggested by Rosi Braidotti, influenced by Haraway, who adopts the transformations in relationships to describe a post-anthropocentric world (Braidotti, 2019). In her perspective the human being is the synthesis of a nomadic becoming that mixes organic and inorganic, overcoming the dichotomy of culture versus nature, that marked modern humanism. The modern subject is replaced by the idea of a relational, hybrid subject: a “becoming-earth”, “becoming-animal”, “becoming-machine” (Braidotti, 2009). In this vision – according to Heidegger's discussion of the technological understanding of Beingⁱⁱ – education is defined as hybridization, a form of human beings that develops through connections. Education is an open process in a double sense: as an itinerary always unfinished, and as a relation between me and otherness – which include human beings, digital technologies, and the entire ecosystem. The concept of hybridisation can be useful in understanding the presence of digital technologies in education and training dynamics. Nevertheless, Braidotti's position runs the risk of defining a basic equivalence between the technological dimension and the cultural dimension in the formation of the human being, which we believe to be problematic (Rivoltella & Rossi, 2019).

Secondly, the revolution we are living through depends on changes in communication technologies: information has passed from the functional-communicative level to the structural-ontological level (Floridi, 2010). Through numbering and binarization – the essence of digitalization – reality has become informational (Castells, 2009). Informational devices can collect, process, communicate and connect information concerning human beings (big data). Luciano Floridi affirms that we are living in the fourth revolution (2014), which changes

our human role: we are informational organisms (*inforq*) immersed in an environment that combines pre-digital reality and binary logic (Floridi, 2015).

Assuming this interpretation of contemporaneity, the central issue from an educational perspective becomes the interface we adopt about ICT; it means that the observation lens with which the human being relates to digital language becomes central, in terms of simple user and even more in terms of design. The gaze offered by digital technologies and the way of assuming this mediation concerning the reality it represents is crucial to understanding where, also and above all, identities, relationships, and knowledge fall. For example, we can consider shortly the adolescents' identity in social media: public exposure on the web leads in fact to modifying one's identity by highlighting certain characteristics and, reducing the discourse, we can identify two approaches on narrating oneself: on the one hand, personal branding, which leads one to identify what I am with what I communicate, trying to communicate what others – the Social Media Public – want me to be. This perspective is connected with a logic of quantification of the Self. On the other hand, self-telling can get away from self-presentation, trying to be open to experimentation: this is certainly positive, also in terms of an educative itinerary. In this sense, new media and social networks can be the ideal instrument for self-exploration (Bonafede, 2021).

The third theoretical assumption is the reflection on technique by Bernard Stiegler: a reflection that is related to education. Stiegler has developed an original interpretation of the technique intended as externalized epiphylogenetic memory, which becomes a mnemonic prosthesis of the human being (1994). Within this vision, technology becomes a connective tissue, and it is represented as a collective apparatus, which forms a technological community, different from any ethnic-political community. Technics is what supplements a lack of origin or essence (following a logic of supplementarity, which is Derridean). The point is not to replace humanism with technological determinism but rather that the human, lacking an essence, is constituted contingently through technics as becoming: «humans are only by default. That means, they “are” only in as much as they become» (Stiegler, 2004, p. 43). Technique, which for the human being is always given as a prosthesis (supplement, complement, addition) is an acquisition: it consists of a cultural acquisition, given to us through the historical-concrete mediations that men have put in place during their evolutionary journey. At the same time, however, technique is also an *a priori*, especially if we look at it from the point of view of someone born into a certain already technologised context: technological devices are given to us, and they change our perception of ourselves and our perception of the reality around usⁱⁱⁱ.

Stiegler's reflections focus on the social and political consequences of contemporary technology; among these effects are some issues concerning education. Contemporary digital devices are not neutral, they claim to inform but in reality, they produce drives in a way that is destructive for individual and collective psychic individuation (Simondon, 1958), that is the process by which individuals are constituted and formed, and with their societies. Individuation is how society unites and becomes a body, inheriting previous experiences. If memory is externalised in ICT, and technology is used for utilitarian purposes, people end up being conceived as algorithms, and are therefore inherently manipulable, while society takes on the appearance of a laboratory, in which the experts and technicians who control the platforms aspire to direct the behaviour of individuals (Zubhoff, 2019). This leads to a generalized proletarianization, where the underlying problem is not so much (or not only) biopower or capitalism, but the lack of attention in our processes, like reading, and more generally the loss of desire, motivational drives of humanization^{iv}. Stiegler defends a form of humanism in which people, especially young people, can identify themselves as “non-inhuman” beings and form themselves in this hybrid environment (2008). Stiegler adopts the concept of individuation, with which he understands the double process of self-definition as a difference related to otherness through which a person reaches an individual sense separate from the identities

of others and begins to consciously exist as a human being in a world co-habited, according to Bruner's logic of narrative identity (1987)^v; and secondly, as a process of awareness and formation of this identity about technological difference, according to Freire's logic of conscientization (1971).

According to this second meaning of individuation, the essential prerequisite for starting the educational-training process is to recognize that digital learning environments – and more in general digital technologies – are not free and open access, but expensive and profitable industrial products, even when they are first offered free of charge (Quintarelli, 2020). Users can choose from the options programmed within them, but very few can peek at the black boxes of the programs themselves. Popular and everyday digital environments are built on a digital infrastructure designed and formatted by very few transnational companies (GAFAM above all), whose platforms are rigid and cramped, whose operating algorithms are for the most part secret and protected by impenetrable patents, and whose way of profiting from users' information is generally unknown (Zubhoff, 2019). So, with Stiegler, it can be argued that to become human, we must rely on technological supports, which in turn depend on specific worldviews designed by other human beings: anthropogenesis is one with technogenesis. Our humanization – the process to form ourselves – depends on particular inventions and technological evolutions, and digital devices are part of this co-transformative process where education is inhabited by physical and digital reality.

This means that the relationship between human education and ICT is an intimate correlation, where these are now interfused with one another. A humanistic pedagogical approach can be meaningful today starting from the understanding of this close relationship between the cultural and technological dimensions. The pedagogical investigation consists precisely in seeking the forms of the human that emerge from the digital context. This research is defined pedagogically by two aspects. In the first place, education must be considered as that original phenomenon of human life (Fink, 1957) which is relational and intergenerational: it concerns the existing generation that welcomes and introduces newcomers into a world already existing where the prevalent technologies are included. Technologies are in effect a further window into the world because they mediate our relationship with reality and allow us to incorporate cognitive and social patterns and habits. Secondly, education is not only the transmission and assumption of the gaze of others (technological or human gaze) on the world but allows newcomers to relate freely, distancing themselves and creating new creative forms of openness to the world.

Thus, in this paper, about the reading issue, we adopt a hybrid approach between human beings and technologies – such as the one we can assume by adopting critically Stiegler, Braidotti and Floridi positions. Their views allow us to conceive education as a plural process, where human beings play a role in their growth together with other actors, in the complex contest that inhabits. In this way, we do not fall into a technodeterminist perspective. Although we are formed by technologies, we are not fully defined by them. Being educated (as opposed to simply being inserted into a world or indoctrinated) means having the opportunity to move forward with what matters, even in unpredictable and truly innovative ways, in an ever-coextensive circle of excavation of foundations and exploration of new paths (Vlieghe, 2018).

3. Reading in contemporary age

This philosophical perspective about the ICT-education relationship we define in the last paragraph gives us the preconditions to deal with the possible transformations of reading in the digitalized era.

As we told, we can read the contemporary age as an infosphere world: the present is configured as the time of hyper-history (Floridi, 2014), a new era that goes beyond the time of history, because there is a new language that converges everything: this is the binary language, that allows new forms of social well-being and economic development. In hyper-history, the new economy depends on ICT and big data that five billion users, connected

to the Internet, exchange with each other in the world (WeAreSocial, 2020). In this scenario, communication is fragmented because collective and individual informations are fragmented into multiple, short and unfinished messages. Young people in their twenties have the habit of changing sources of information 27 times in an hour, checking their smartphones on average 150 times a day (Millennial Study, 2017). This data has increased during the last years of the pandemic.

The impact that this amount of transient data has on the reading abilities of users, including children and young people, is verifiable by considering, for example, the contents available on Internet and Social Networks; tweet, posts, stories, chat and memes are forms of communications designed as reduced and fragmented. The era of letters and multi-page enquiries seems to be over. The new design of information spares the reader from the analytical work of decomposition and new assemblage of contents, fundamental for acquiring critical autonomy in the interaction with written forms of cultural communication (Roncaglia, 2018).

If the act of reading, especially reading long texts or books, does not depend only on the functional skills of decoding, but activates processes of recognition and acquisition of configurations, strategies and feelings that characterize profound reading, digital screens inhibit these processes in the long run (Wolf, 2018). This is because the average person consumes every day the equivalent of about 100,000 words daily in data and information on the Net, the same number found in a novel (Ulin, 2010): but he/she does this reading operation in rhapsodic and fragmented sequences of activities, losing the habit of continuous, prolonged and focused reading (Wolf, 2018).

The paradigm of the fractal structure of digital information (Rivoltella & Rossi, 2019) is leading to the disintegration of attention: due to the exorbitant amount of volatile data with which we are dealing, working memory doesn't work optimally, and thus also the long-term consolidation capacities are altered (Wolf, 2018, pp. 79-80). The accelerated digital world assumes that we do not need to remember what we read as in the past, to the point that the average memory capacity of adults themselves has decreased in the last decade, because every status updates you read on Social Media, every tweet, text or audio message you get from a friend or the Net, is competing for resources in your brain with other important things, by reducing time to live beyond this fragmented information (Levitin, 2014).

Less and less in-depth texts are chosen as a form of entertainment (novels) or to develop knowledge (essays). Fragmented texts and other types of communication – as multimedial ones – replace deep reading with comprehension problems in the analytical and generative processes of deep reading (Wolf, 2018). This is a trend that was verified already before the Covid-19 pandemic. OECD-PISA surveys (2019) present the increasingly urgent question of functional illiteracy, which clearly does not depend so much (or not only) on digitization. Only 5% of students in Italy rank at the highest levels (Level 5 or 6) in the PISA reading test (OECD average: 9%). It is true that, compared to 2012, the average Italian pre-digital reading performance (reading a book) has decreased, and at the same time the average time that 15-year-olds in Italy have spent on the Internet has more than doubled, going from less than two hours a day to about four hours a day.

Even if there is no causal relationship between the two elements, it is difficult to not relate, in terms of hypothesis, functional illiteracy issues with the amount of data and pieces of information that invest childhood and adolescent users, especially if we consider also how reading is approached in today's accelerated context. In this sense it sounds as though many children are highly functional when it comes to navigating these social media environments, but, at the same time, as we have seen, data show us that reading abilities may be lost here. Exploring this lack, trying to figure out or propose some solutions, is a task for philosophers of education and pedagogists.

In this sense, according to the theoretical framework, ICTs have a strong impact on reading – and learning – processes, because digital devices combine a hasty way of approaching reading, often carried out in contexts that are not adequate to activate processes of deep reading and meaningful learning (Rivoltella, 2020).

4. Bi-literacy in reading: Hybrid education

In this scenario, the question about reading transformations in the digital age confirms our hypothesis: now we have to verify if it is possible to preserve the space of deep reading, and with this, of learning. In educational terms, it is necessary to re-modulate the interface we adopt to approach reading time, and more generally, our relationship with information and communication, which clearly involve digital technologies.

Our philosophical framework draws on the work of Maryanne Wolf. She proposes an educational reform project where reading and media literacy represent skills that must be integrated into parallel paths, designing an itinerary for an integrated bi-literacy that preserves functional reading abilities. In her proposal, one would start with the initial introduction of paper-based reading, which requires children to spend a lot of time carefully focusing on the technical action of reading, from decoding to attribution of meaning, reflection and interpretation to the subsequent written formulation of their thoughts. In parallel, digital devices would be the means to develop deductive, inductive and analogue skills through programming activities that do not involve reading (Bers & Resnick, 2015). Only once reading on paper has been consolidated, digital screens could become another type of device, different from the book, for reading. In this way, reading should be associated with reflective and comparative skills assumed with the initial introduction of reading on paper, which emphasize the experience of reading as a search for meaning and as an analytic-reflective process (Wolf, 2018, pp. 160-164).

This perspective hybridizes and co-integrates the different abilities that human beings assume with different technologies – if we consider, as Plato did (Ong, 1982), writing and thus books a type of technology. In this way the culture of the book – the humanistic culture – and the ICT culture could be integrated: a sequential, alphabetic, narrative culture, capable of organizing and structuring thought, should be combined with topological and spatial culture, where analogies, comparisons between images and interactivity are exploited (Bonafede, 2021). In this sense, for example, the reading time of a novel, a short story, or an essay, should be maintained, using digital devices to realize notes, produce video or graphic presentations, or create tests about the same text. Or it is possible to use the educational applications that ICT offers for tasks that do not directly relate to reading comprehension and reading, as long as space and time for reading are maintained. In other terms, it is necessary to maintain a dedicated time to deep reading activities, which is the priority. We believe that the two educational modalities, the techno-scientific and the humanistic-traditional, should not be equated; one should always remain subordinate to the other. Taking the time to read is a form of cultural resistance, allowing you to maintain skills that digital tools are rapidly eroding. The ultimate goal of this bi-literacy project is to develop a bi-literate education, «capable of allocating time and attention to deep reading skills regardless of the medium used» (Wolf, 2018, p. 165) while developing the abilities offered by digital life.

According to the theoretical framework of this paper, the reasonableness of this proposal consists in the fact that this model suggests plural forms of education: it reiterates the necessity of deep reading, but at the same time it combines this necessity with the immediacy and speed of digital activities, developing at the same time different thinking and learning models. The integration of the digital and alphabetical approach gives rise to hybridisation – a key-term used in the theoretical framework for education in general – creating a relational form of learning where awareness of the different technologies and their role in the development of competencies can enable the preservation of different learning media (books, videos, experiences, games or video games). Conceiving education as a hybrid and plural process, in which space must be allocated for different forms of

learning, helps to safeguard humanistic education – that allows the development of analytic-narrative thought – by integrating it with digital skills, that activate spatial logics, intuitive thinking and co-construction processes (Bonafede, 2021). In this sense, the theoretical assumptions presented previously are confirmed in Wolf's perspective: the interface she designs to approach reading in a digitalized era maintains a balance between different types of technologies. So Stiegler's assumption that anthropogenesis is one with technogenesis should be confirmed by acting on the relationship between human beings and different devices – such as books and ICTs – to favour plural educational processes, safeguarding different types of human competencies.

This proposal can be historically found in forms of cultural transmission and learning that have been separated. The topological approach, centred on gaze, sight and adaptive responses to images, is certainly what characterizes digital devices today, but in the history of culture, it has accompanied elementary and popular forms of learning. I refer to the role played by sacred art; the representations of the lives of the saints are images used to show ethical models of civil and social virtue. From these artworks, people who could not have access to alphabetic literacy learned intuitively and immediately the different forms of Christian Charitas (Bargellini, 1968; Barbero & Frugoni, 1999). By assonance then, art has throughout history represented a form of visual culture that retains those educational characteristics that are still valid in the digital age.

While the topological approach is based on intuitive and rapid associations, alphabetical learning needs time and long attention to mature. We may observe the study method thought up during Modernity for the elites; learning has been interpreted over the centuries according to the formulas of the *ars legendi*, the rigorously extensive erudite reading, which required time functional to the *ars excerpendi*, the practice of drafting notebooks of extracts used to compose new texts according to a circular and reflective process. An art shared in modernity by many European scholars. In this way, the processes of interpretation, reflection and written re-elaboration were combined in a study method that allowed students to remember more and more orderly. It freed scholars from the obsession with mnemonic learning and relying on secondary memory. According to Wolf, our proposal would only integrate different forms of education and learning that are historically consolidated, adding to them digital interactivity.

Secondly, from a psychological point of view, the bi-literacy proposal finds epistemological solidity in the theory of the double code of Paivio (1986), according to which long-term memory, and with it learning, is based on two autonomous and interconnected coding mechanisms, the verbal and the imaginative: the first specialized for dealing with linguistic information, the second for processing non-linguistic stimuli. The interconnected use of the two mechanisms would have an additive effect, facilitating the learning activities; photographs of faces accompanied by verbal information regarding the persons represented would, in fact, lead to better recognition (Paivio, 1991, pp. 255-287).

Thus, also digital could accompany forms of written knowledge, favouring memorization and learning processes (Wolf, 2018, pp. 164-165).

5. Conclusion: Meta-reflection and time

A bi-literate education project allows allocating time and attention to deep reading skills regardless of the medium used while maintaining the other abilities offered by habits of digital life (Wolf, 2018). Studies in the literature have amply demonstrated how reading influences and operates at many cognitive levels and can act as a real gym for the mind. Frequent reading habits can affect verbal, numerical and abstract reasoning skills (Batini & Bartolucci, 2016).

Beyond specific literacy and digital interaction skills (reading and media literacy), our proposal allows considering reading within a meta-reflective horizon, where the importance of learning lies in the allocation of relaxed

time for activities. It is necessary to recover the reading time to allow the reader to activate their cognitive processes and realize interactions between different processes (Novak, 1996). In this way, we can explore different grammatical models, topological and alphabetic-narrative, developing our relationship with technological devices without losing our deep reading attitude (Vlieghe, 2015). In conclusion, according to this proposal on reading and media literacy, the goal of education is to hybridize and co-integrate plural forms of learning in different ways. To realize this hybrid model, it is necessary to give the necessary time to activate and consciously manage the different levels and processes of learning. This theoretical proposal offers the possibility to combine with awareness of the formal and informal learning processes (Gutiérrez, 2008; Potter & McDougall, 2017), moving from remote and emergencial teaching to digitally augmented teaching, without losing humanistic skills.

In this perspective, the school would acquire the role of meta-reflective guide, offering support to students in the construction of an increasingly conscious and personalized study method, where rediscover the centrality of reading and humanistic culture, and the importance of adopting the correct interface to activate specific processes, in learning and educational time (Bonafede, 2021).

ⁱ Augustinus, *Confessions*, L. XI. Augustinian spiritualism has shown that it cannot be said that memory and expectation exist insofar as past and future exist, but rather that past and future exist insofar as memory and expectation exist, that is, not time makes the history of the soul possible, but the history of the soul makes time possible (Pareyson, 1970). In the digital age, the acceleration of time produced by ICTs does not allow memory and anticipation to unfold but replaces them with haste and frenzy. The latter become the vectors of an accelerated time.

ⁱⁱ According to Heidegger, in our age ‘being’ has the character of a technological ‘framework’, from which humans approach the world in a controlling and dominating way, and this is the ultimate danger for humanity and for the process of humanization. M. Heidegger, “The question concerning technology: and other essays (pp. 3-35).” (1977). Seubold, Günter. *Heideggers Analyse der neuzeitlichen Technik*. Freiburg-München: Alber, 1986.

ⁱⁱⁱ In this sense technique is time, according to Stiegler, because the history of man and the history of *Dasein* begin exactly with scripturality: before that, there is no history, neither man nor *Dasein*, but only the background noise of βίος (bíos), eternally flowing and without memory, if not biological. Technique and time are thus united in a structure of circularity infinitely referring back to itself, to a blind spot, to a flaw, to a necessary defect (Stiegler, 1994).

^{iv} According to Stiegler, the economy on which the technologies of control are based is aimed at annulling desire, defining itself as a pulsional economy and not a libidinal economy.

^v https://ewasteschools.pbworks.com/f/Bruner_J_LifeAsNarrative.pdf

References

- Barbero, A., & Frugoni, C. (1999). *Medioevo. Storia di voci, racconto di immagini*. Laterza.
- Baron, N. (2014). *Words onscreen: The fate of reading in a digital world*. OUP.
- Batini, F. (ed.). (2021). *Ad alta voce. La lettura che fa bene a tutti*. Giunti.
- Batini, F., & Bartolucci, M. (2016). Chi legge ... ragiona meglio? Abitudini di lettura e funzioni di ragionamento. *Ricerche di Pedagogia e Didattica – Journal of Theories and Research in Education* 11, 3, 37-45. <https://doi.org/10.6092/issn.1970-2221/6444>
- Bonafede, P. (2021). *Connessioni e relazioni. Filosofia dell'educazione e socialità digitale*. Anicia.
- Braidotti, R. (2009). *Il Postumano: La vita oltre l'individuo, oltre la specie, oltre la morte*. DeriveApprodi.
- Braidotti, R. (2019). *Materialismo radicale*. Meltemi.
- Bruner, J. (1987). Life as narrative. *Social Research*, 54(1)11-32.
- Carr, N. (2011). *The Shallows. What the internet is doing to our brains*. Norton & Co.
- Buckingham, D. (2019). *The Media Education Manifesto*. Polity Press.
- Castells, M. (2009). *The rise of the Network Society*. Blackwell.
- Dehaene, S. (2009). *Reading in the brain*. Penguin Books.
- Fishman B., & Dede C. (2016). *Teaching and Technology: new tools for new times*. In D.H. Gitomer, C.A. Bell (eds.), *Handbook of research on Teaching* (pp. 1269- 1334). AER Ass.
- Floridi, L. (2010). *Information: A very short introduction*. Oxford UP.
- Floridi, L. (2014). *The fourth revolution* Oxford UP.
- Floridi, L. (Ed.). (2015). *The Onlife Manifesto*. Springer.
- Floridi, L. (2020). *Pensare l'infosfera. La filosofia come design concettuale*. Raffaello Cortina.
- Freire, P. (1971). *Pedagogia degli oppressi*. EGA.
- Gehlen, A. (1957). *Die Seele im technischen Zeitalter*. Klostermann.
- Kanheman, D. (2011). *Thinking, fast and slow*. Penguin.
- Latour, B. (2009). *Non siamo mai stati moderni. Saggio d'antropologia simmetrica*. Elèuthera.
- Levitin, D. (2014). *The organized mind*. Dutton.
- Lubbé, H. (2009). The contraction of the Present. In H. Rosa & W. Sheurman (Eds.), *High Speed society. Social acceleration, power and modernity* (pp. 159-178). Pennsylvania UP.
- Morris R., Tarassenko L., & Kenward M. (eds.) (2006). *Cognitive systems - Information processing meets brain science*. Elsevier.
- Novak, J. (1996). *L'apprendimento significativo*. Erickson.
- Novak, J. (1998). *Learning, creating, and using knowledge: Concept maps as facilitative tools in schools and corporations*. Erlbaum.
- Ong, W. (1986). *Oralità e scrittura. Le tecnologie della parola*. Il Mulino. (Original work published 1982)
- Paolo Bonafede – *Reading shreds beyond pandemic. A critical-reflective analysis of reading in the digital era*
DOI: <https://doi.org/10.6092/issn.1970-2221/15554>

- Paivio, A. (1986). *Mental representations. A dual coding approach*. Oxford UP.
- Paivio, A. (1991). Dual coding theory: Retrospect and current status. *Canadian Journal of Psychology*, 3, 255-287. <https://doi.org/10.1037/h0084295>
- Pareyson, L. (1970). *Esistenza e Persona*. Il Melangolo.
- Potter J., & McDougall J. (2017). *Digital media, culture and education. Theorising third space literacies*. Palgrave Macmillan.
- Rivoltella, P.C., & Rossi, P.G. (2019). *Il corpo e la macchina. Tecnologia, cultura, educazione*. Scholé.
- Rivoltella, P.C. (2020). *Tempi della lettura. Media, pensiero, accelerazione*. Scholé.
- Roncaglia, G. (2018). *L'età della frammentazione. Cultura del libro e scuola digitale*. Laterza.
- Rosa, H. (2010). *Alienation and acceleration. Towards a critical theory of late-modern temporality*. NSU Press.
- Rosa, H. (2016). *Resonanzpädagogik*. Beltz Verlag.
- Simondon, G. (2017). *Sulla tecnica*. Orthotes. (Original work published 1958)
- Stiegler, B. (1994). *La technique et le temps, tome 1: La faute d'epimethee*. Galilée.
- Stiegler, B. (2004). *Philosopher par accident: Entretiens avec elie during*. Galilée.
- Stiegler, B. (2008). *Prendre soin. De la jeunesse et des générations*. Flammarion.
- Stiegler, B. (2011). *The decadence of industrial democracies disbelief and discredit, volume 1*. Polity Press.
- Ulin, D.L. (2010). *The lost art of reading*. Sasquatch Books.
- Vlieghe, J. (2014) Education in an Age of Digital Technologies. Flusser, Stiegler, and Agamben on the Idea of the Posthistorical. *Philosophy & Technology*, 27, pp. 519–537. <https://doi.org/10.1007/s13347-013-0131-x>
- Vlieghe, J. (2015). Traditional and digital literacy: The literacy hypothesis, technologies of reading and writing, and the “grammatized” body’. *Ethics and Education*, 10(2), 209–26. <https://doi.org/1080/17449642.2015.1039288>
- Vlieghe, J. (2018). Education in a digital age: How old and new technologies shape our subjectivities. *Explorations in Media Ecology*, 17(1), 57-61. https://10.1386/eme.17.1.57_1
- Vygotskij L.S. (1966). *Pensiero e linguaggio*. Giunti-Barbera.
- Wandell, B.A., & Yeatman, J.D. (2013). Biological development of reading circuits. *Current Opinion in Neurobiology*, 2, 261-268. <https://doi.org/10.1016/j.conb.2012.12.005>
- Wolf, M. (2007). *Proust and the Squid. The story and science of the Reading*. Icon.
- Wolf, M. (2018). *Reader, come home: The reading brain in a digital world*. Harper Collins.

Online References

- CENSIS (2020). *Italia sotto sforzo 2020. La scuola e i suoi esclusi*. In: <https://images.agi.it/pdf/agi/agi/2020/06/09/093133436-fa073eb1-d556-446f-87d6-2eecb90b0d76.pdf>
- COVID-19 GOVERNMENT RESPONSE TRACKER (2022), University of Oxford. In: <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>

-
- Delors J. (1996). *Learning: the treasure within; report to UNESCO of the International Commission on Education for the Twenty-first Century*. In: <https://unesdoc.unesco.org/ark:/48223/pf0000109590>
- ISTAT (2022). https://www.istat.it/it/files//2022/05/REPORT_ALUNNI-SCUOLE-SECONDA-RIE_2021_2.pdf
- JRC Science for Policy Report of European Commission, *What did we learn from schooling practices during the COVID-19 lockdown?* In: <https://publications.jrc.ec.europa.eu/repository/handle/JRC123654>
- OCSE-PISA (2019), *Results from Pisa 2018*, Italy. In: https://www.oecd.org/pisa/publications/PISA2018_CN_ITA_IT.pdf
- Qualtrics, *Millennial Study*. In: <https://www.qualtrics.com/millennials/>
- Recommendations 2006/962/CE. In: <https://eur-lex.europa.eu/legal-content/IT/TXT/PDF/?uri=CELEX:32006H0962&from=EN>
- Recommendations UE 2018/C 189/01. In: <https://eur-lex.europa.eu/legal-content/IT/TXT/PDF/?uri=OJ:C:2018:189:-FULL&from=FR>
- World Bank Education (2020) *Simulating the potential impacts of Covid- 19 School Closures on Schooling and Learning outcomes: a set of global estimates*. In: <http://pubdocs.worldbank.org/en/798061592482682799/covid-and-education-June17-r6.pdf>.
- WE ARE SOCIAL (2020), *Digital Report*. In: <https://wearesocial.com/digital-2020>

Paolo Bonafede Ph.D., is a research fellow of General and Social Pedagogy at the Department of Humanities of the University of Trento, where he teaches the courses Philosophy of Education and Pedagogy of Digital Sociality. Secretary of the "Antonio Rosmini" Study and Research Centre of the same university, he is an ordinary member of SIPED, CIRSE and member of the scientific committee of CEMET. He is author of several publications on early childhood philosophical theories, adolescents and social media, philosophy of education theories and narrative pedagogy.

Contact: paolo.bonafede@unitn.it