A New Generation of Readers in the Digital age: Attentive or Distracted?

Zakia DJEBBARI[1]*& Houda DJEBBARI[2]
[1]*Senior Lecturer, Department of English, Tlemcen University, Algeria*
[2]*Doctoral researcher, Department of English, Tlemcen University, Algeria*
Corresponding Author: Zakia DJEBBARI, E-mail: djeb13@yahoo.co.uk

ARTICLE INFO	ABSTRACT
	Within a progressively high knowledge-based society, globally-oriented world, and diverse society, making sure that our students are well equipped with the necessary tools and competences to live in this digital age is, in fact, one of the prevalent challenges facing today's education. Indeed, the novel nature of reading and readers has enormously changed as digital texts and technologies become more prevalent. Thus, teachers are under the pressure to shape their teaching visions to more mobile-based reading ways that will cope with learners' new requirements to exist, struggle, and cooperate in a newly global scenario. Thus, the present paper attempts at reflecting upon the challenging task of teachers, from developing world, to incorporate new educational technologies into their typical classrooms in general and reading practice in particular for a better teaching/learning experience. Nonetheless, one should be cognizant of the fact that despite the growing importance of ICTs in education, there is no "magic bullet" that will answer all existing challenges (Schramm, 1977), still there is a lack of a structured approach based on collaboration, innovation, development and implementation of educational technologies. Hence, incorporating technology within the reading process may create a challenging problem at this level; do our learners, in such a technological scenario, read as attentively and thoroughly as required? How do their brains respond to onscreen text than to words on paper? Should teachers be worried about dividing learners' attention between pixels and ink? This paper will answer these questions and many other concerns.

1. INTRODUCTION

1.1 Introduce the problem

Man in general is currently living in a globe which is clearly characterised by a constantly emerging new information and communication technologies ICTs which, in fact, challenge the education sector with novel opportunities. Institutions throughout the world have started adopting and inserting new ways of teaching based on information and communication technologies. Thus, it is not a matter of accepting this kind of *colonization* or not, it is now a compulsory common place into our educational system and teachers should design their courses and accept these challenges to be able to survive within such a new digital age.

Despite the widespread adoption of tablets in schools, ranging from elementary through higher education, research about the effects of tablet use on student learning has obvious gaps. Rapid technological advances and changing features in electronic devices create challenges for those who study the effects of

using them; specifically, researchers face limitations in understanding the effects of digital reading on student recall and comprehension. More importantly, increasing our understanding of the influence of electronic devices on learning will inform educators about the implications of test scores and performance.

Within this changing time of globalisation where teachers have to deal with digital native learners, it seems crucial for them to be familiar with information and communication technologies to survive in this digital age. A generation ago, teachers could expect what they taught would last their students a lifetime! Today, Because of rapid economic growth and social change, our educational institutions have to prepare learners for jobs that have not yet been created, technologies that have not yet been invented and problems that we don't know will arise! Our mission is, then, to build a sustainable platform that supports the development of skills for life-long learning in a professional manner.

This paper is deduced to our countries to redirect our attention, inspire our curiosity to move from the traditional ways of teaching to more professional education. However, a challenging problem may arise at this level; and the following questions will be raised:

- Do our learners, in such a technological scenario, read as attentively and thoroughly as required?
- How do their brains respond to onscreen text than to words on paper?
- Should teachers be worried about dividing learners' attention between pixels and ink? This paper will answer these questions and many other concerns.

1.2 Digital Literacy

Acquisition of better reading strategies is apparently needed to crack the illusion of comprehension in readers who are settling for low standards of comprehension; They need to acquire and implement strategies to facilitate deeper levels of comprehension. Grabe (2009, cited in Hamidreza & Hashemi, 2016: 449).

Reading comprehension is an active cognitive process which involves reasoning to construct meaning from a written text and understanding it effectively and comprehensively (Nakamoto, Lindsey, & Manis, 2008). It is the task of EFL learners to be able to deeply and adequately understand the written language, this in fact, necessitate teaching them the reading comprehension skills that comprises reading *what* to read, *when* to read, and *how* to read proficiently. Thus, supporting EFL learners' reading comprehension through training them how to read seems to be compulsory in our teaching practice.

Learning to comprehend a text is critical for students to be successful in the future careers. As new technologies emerge, there is a push to integrate technology into our classrooms to promote academic success, lifelong learning and engagements among students. These are the most important requirements for 21st century classrooms.

It is often assumed that technology-based instruction may enable students to learn at their own speed, give and receive feedback from peers and instructors alike. Furthermore, it provides a wide range of variables within the learning and teaching opportunities. Higher education institutions throughout the world in general and developed countries in particular have started adopting a type of information and communication technologies (ICTs), which refers generally to as "*course management systems (CMS) to improve pedagogy*" (Limayem et

al.; 2003; Tavangarian et al., 2004; Ifinedo, 2006; 2007a; Ngai et al., 2007).

Consequently, our educational systems are believed to be of great need to fundamentally address their missions towards possible ways of incorporating information and communication technologies (ICTs) to respond carefully to the current challenges. This is mainly to investigate and assess how our educational institutions may explore the courses, taking into account the creative and innovative use of new technologies within the teaching /learning process.

Educational technologies are said to be changing very rapidly. This resulted, in fact, newly pedagogical researches aiming at developing curricula that would effectively utilize the latest technologies. In this sense, there seems an existence of four widely recognized, flexible and well-researched and accepted pedagogies for learner-centred technology-supported environments: *convenience* and *flexibility*, *contextualization*, *collaboration and communication and constructive feedback* (Fox *et al* 2008: 10-11). These may shape the foundation for examining possible future technologies to judge the value of applying new technologies for a better language instruction, and thus a better ongoing academic training.

In this respect, Crystal (2006:271-272), suggests that we are witnessing an '*electronic revolution*' which was bringing about a linguistic revolution. He puts forward the phenomenon of Netspeak in which he believes it is going to '*change the way we think' about language in a fundamental way, because it is a linguistic singularity – a genuine new medium'.* Furthermore, Evidence indicates that when applied effectively, "*technology applications can support higher-order thinking by engaging students in authentic, complex tasks within collaborative learning contexts*" (Means, Blando, Olson, Middleton, Morocco, Remz, & Zorfass, 1993).

Within the immensity of digital devices, educators need guidance and supports to make appropriate decisions about instruction and teaching. Despite the widespread appearance of tablets and digital devices at all life sectors, research about the effects of devices use on students' learning has gained momentous attention and still, there exist an obvious gap. Rapid technological advances and changing features in electronic devices create challenges for those who study the effects of using them on learners' outcome.

The term *digital literacy seems to be* one of many concepts that have been used to engage and describe current the changing landscape of digital media.

According to Lankshear and Knobel (2008:5), the term digital literacy can be thought of as *"a shorthand for the myriad social practices and conceptions of engaging in meaning making mediated by texts that are produced, received, distributed, exchanged, etc., via digital codification"*

Reading ability in general is related to the growth of the brain's white matter tracts, it connects the brain's language centres, and the interior longitudinal with parts of the brain that process visual information.

Maintaining this in mind, it should be considered that:

- Strong readers rewire their brains,
- Reading different styles create different brain patterns,
- Reading helps learners be smarter and attentive ,
- A number of brain regions are involved in reading and comprehension.

To analyse this, let us have a deep look on the reading process and its different ways to be developed:

1.3 Reading Process/Progress: Attentive or Distracted Readers?

Because we literally and physiologically can read in multiple ways, how we read — and what we absorb from our reading — will be influenced by both the content of our reading and the medium we use." Maryanne Wolf

Reading opens the door to a world of adventure, culture, diversity and knowledge, and it appears to be a vital activity needed to the develop learners' curiosity and love of learning. Thus, the way we read affects our progress and development.

It is often believed that teachers incorporate reading-skill building in their classes either as a separate skill or within other tasks. However, taking time to discuss and actively engage students in the actual reading process seems to be neglected within our teaching profession. This, in fact, has resulted in ambiguities in the ways learners read and grow to become better readers.

Learners may read differently according to their learning styles, needs and preferences. But the issue worth raising here is that does the way learners approach any text affect the results and outcomes after the reading process?

Traditionally, learners have special love to take the book and read it. There's a certain smell in books, and only books, will ever emit. Freshly printed material, rough pages, and the sound of flipping a page, give an extraordinary taste, this is what Reading is all about.

The total experience of reading a book includes all these actions. A paper book can easily form a coherent mental map of the text in the brain. Scientifically speaking, researchers observed a global increase in blood flow to the brain during close paper reading, this suggests that *"paying attention to literary texts requires the coordination of multiple complex cognitive functions."*

Close reading activates parts of the brain that are associated with touch, movement, and spatial orientation. It was as though readers were actually experiencing being in the story. Within this era, Our cognitive capacity has changed to accommodate the technology that has put wonderful things in front of us, but it comes at some cost.

Just like everything, books and reading are going digital. '*We're spending so much time touching, pushing, linking, scrolling and jumping through text that when we sit down with a novel, your daily habits of jumping, clicking, linking are just ingrained in you."* Professor Andrew Dillon,

Now, the debate is upon: whether reading a physical book (hardcover or paperback) or reading from an e-book reader like the Amazon Kindle is better? The answer is not as easy as one may think!! Compared with paper, screens may also drain more of our mental resources while we are reading and make it a little harder to remember what we read when we are done.

A parallel line of research focuses on people's attitudes toward different kinds of media. Whether they realize it or not, many people approach computers and tablets with a state of mind less conducive to learning than the one they bring to paper.

Looking at the angle from a scientific point of view, a great number of researchers have noticed that in reading behaviour may change as readers adopt new habits while interfacing with digital devices. Moreover, using digital devices in reading helps learners more likely read a document only once and expend less time with in-depth reading. However, such habits raise concern about the implications for academic learning. Oddly enough, learners in such a scenario may switch tasks, opening many tabs, on average, four times while using electronic devices.This will distract learners from the primary objective of reading.

1.4 E-Ink: A Source of Distraction:

Considering language as being a remarkable index of pedagogy changing, it would be surprising; indeed, if such a radically innovative phenomenon; namely technology did not have a fascinating impact on the way learners learn and grow. However, the feasible combination of technology into the reading process seems reasonably doubtful if it is not carefully integrated within the curriculum accompanied by appropriate services, mechanisms and professional development support (Fox, 2003).

In recent decades, on account of the rapid advances in computer sciences and other related disciplines, using technology in teaching/learning reading has become a fashion in current practice, an important part of the reading process, a new paradigm of reading pedagogy, and a major trend in the industry.

Electronic and digital technology prompted a widening of the way learner read and think. It soon became apparent that the concept of e-reading had to enter the realm of visual, digital multimedia, and hypermedia. Now that digital technology has made its presence known in all areas of research, and the question has to be asked, in what form does digital devices expand e-reading and thinking within EFL pedagogy?

One should be cognisant of the fact that the increasing availability of general-purpose software applications such as word processing packages and e-mail, a number of e-ink-specific software systems have migrated from mainframe to PC platforms, rendering them accessible to freelance ordinary readers, rather than being restricted to be used by specialists within language service organisations. This has in a way facilitated the reading process to a large extent, i.e., non-professional reading may take place within the implementation of any digital device. However, this latter does not always offer good results; it needs the refinement, guidance and correction of a professional to avoid distraction.

Most of us have been there: We're reading something we need to know and absorb concentrating on a passage, then suddenly we hear a notification sound: We have a text message, we read it, we answer back and then return to reading. Soon enough we'll need a break from that and we check to see what's up with email, Twitter, Facebook. Then we settle back in to finish the reading we are concentrating on. But have we really grasped what we needed to? This scenario is undoubtedly played out among students in an even more intense way as they face dense reading for demanding courses. So how this multitasking affects learners' brains when reading?

Researchers often state the fact that "*When you read on paper you can sense with your fingers a pile of pages on the left growing, and shrinking on the right*," you may remember words or sentences just from touching or smelling. Besides, for Kindle readers, '*you might have something to do with the fact that the fixity of a text on paper, and this very gradual unfolding of paper as you progress through a story, is some kind of sensory offload, supporting the visual sense of progress when you're reading. Perhaps this somehow aids the reader, providing more fixity and solidity to the reader's sense of unfolding and progress of the text, and hence the story.*" (Anne Mangen, researcher from Norway's Stavanger University, in The Guardian, 2014)

This finding is in fact challenging: paying attention to reading requires the coordination of multiple complex cognitive functions within the brain, however, learners read and reply to messages and see what's up with twitter and Facebook. Learners have a tendency of multitasks when reading, this, in fact distract their attention from concentrating on the reading process.

The debate may offer unlimited ideas that either support or reject the topic under investigation. Notwithstanding this, uncertainties always remain on the influence of digital reading for in-depth (concentrated) reading comprehension for EFL learners and will in all probabilities raise more unanswered questions about the developmental implications for the future. In reality, the effects of reading from digital devices on EFL learners' cognitive developmental skills and literacy abilities are topics to be investigated deeply. Questions delay leaving regarding the consequences of nonlinear reading on brain processing, especially adaptive shortcuts due to scrolling, scanning, and hyperlinks. Just like everything, both methods proved good results according to learners' needs and styles of learning.

In a word, "*There is physicality in reading, ... maybe even more than we want to think about as we lurch into digital reading — as we move forward perhaps with too little reflection. I would like to preserve the absolute best of older forms, but know when to use the new.*" Maryanne Wolf (2010). This is how language teachers should solve out this issue by balancing its use moving from new to old according to different contexts and circumstances. Even though current findings are conflicting *and* inclusive, future studies may shed light on the number of variables involved with digitized text and identify features that

impede cognitive processing, this may fall under the heading of needs-analysis and leaning styles.

If educators understand the effects of digital reading on the development of deep reading, and students' grasp the fact that the '*how*' to read may result in different outcomes under the use of difficult materials, they can formulate instructional influential decisions. Given the current pace of technological change, educators should seize opportunities to further advance our understanding of students' learning while using electronic devices. This does not mean that e-ink always provide good outcomes, it depends on how learners use it, in what occasions and under what pressure.

2. PREVIOUS RELATED STUDIES
Previous related studies about the discussed matter reveals that a number of researchers attempt to look at learners preferences/ achievements through conducting some studies. For instance, in 2013, Kretzschmar et al. conduct a study to compare reading effort and brain activity on three different media: a paper page, e-ink and a tablet computer. The interesting result was that all learners preferred reading on paper rather than on digital media. Strangely enough, the older participants read both faster and with less effort on the tablet computer.

Another study was undertaken in 2013 with tenth-graders in Norway, where the students were divided into two groups. The first group read two texts (1,400–2,000 words) in print and the other group read the same texts as PDFs on a computer screen. Results show that students who read on paper scored significantly better than those who read the texts digitally. Mangen et al. (2013) state that this is because paper gives spatio-temporal markers while you read. Touching paper and turning pages aids the memory, making it easier to remember where you read something.

Reading Process: A Case to Pender

3. METHODS AND PARTICIPANTS
Within a small-scale case study, the researchers conduct an investigation within 2nd year EFL learners at Tlemcen University to check their reading preferences, strategies and process. 30 learner and 7 teachers were selected to accomplish the study.

A survey of reading preferences was submitted to learners and teachers were interviewed about their observations.

Results were varied, sometimes as expected, but other times frustrating. For instance, when given a choice between paper and tablets readings, ranging from printouts to smart-phones, laptops, e-readers and desktops, 92% of respondents replied that it depends on the reading task given to them. Sometimes, it is a must to use printed books better than e-books. Other learners believe that it was impossible for them to imaging reading without any physical books that they can touch, smell and feel the papers of the book.

Oddly enough, some learners state that it is not a matter of the material used, but rather what to read matters the most. For them they read to get the information, they barely read for fun as a habit. This was also stated and, thus, confirmed by two teachers. Within classroom settings, teachers assume that most of the activities are done using paper books, as they are more available, practical and easy to access. However, one teacher states that we are teaching digital natives, we have to be adequate teachers not to seem old fashionable teachers.

All in all, this experiment provided preliminary evidence that laptops and other devices might be harmful to academic performance. Teachers state that students using laptops were in fact more distracted than those using paper books.

4. CONCLUSION
The illiterate of the 21st Century are not those that cannot read or write, but those that cannot learn, unlearn, and relearn. Alvin Toffler. Digital technology can be responsible for bringing human creative expressions closer together through the incorporation of the action of the user. The use of ICTs in language teaching/learning in general and reading in particular, permits EFL teachers overcome time and space barriers, to design new methods and instruments of teaching, tutoring and evaluation.

Within a pedagogical perspective, it is important to realise that the use of new technologies need first and foremost to be learned and mastered, not only by the instructors but also by their learners, i.e., a technical and pedagogical training should be incorporated well before the application of technological tools.

It is obvious that change in anything requires time, and revolution needs modification of both teachers and learners' minds to achieve the necessary knowledge and skills. On the other hand, change also requires investment in staff and equipments as well as in maintenance and training. With the rise of the global economy, the use of language learning software is gradually increasing. Such software replaces expensive and time consuming higher education classes and allows for people to learn and

read on their own schedule. These programs have changed the face of language. They allow for more fluidity in our classrooms, and enhance creativity, progress and change within the four walls of the classroom.

In a more or less different context from the European architecture, developed countries need much more to face and direct their mission towards the current challenges. The educational institutions, therefore, need to urgently work diligently on building a scholarly community, advancing academic research, and the pursuit of truth. It is important to consider the fact that international competition and collaboration, across a wide range of disciplines, are progressively taking shape under the globalization process. The driving force behind such a trend has to be much more improved by the concentrated networks of communication and the increasing mobility of human resources.

In this vein, both teachers and researchers are carefully required to look for a balanced approach entailing appropriate technological instruments which hopefully meet the needs of learners of the newly age in this very particular context. For instance, Bruce and Hogan (1998) describe a world in which technology is an invisible but integral aspect of language use. Their point is that language professionals should wisely recognize how technology is deployed strategically by the competent language user if they are to teach the language learner about and through technology.

Thus, our teaching directions should be shaped and moulded according to international contexts. Teachers should deeply understand the new requirements of today's education, and design upgraded courses to meet learners' styles of learning, remembering that they are digital natives. The following reflective concluding remarks are worth considering:

- Some learners understand what they read on paper more thoroughly than what they read on screens, the differences are often small.
- Remembering is often associated with contextual details, feeling the learned thing through paper books rather than screens (Garland, 2003)
- New e-publishing companies like Atavist offer tablet readers embedded interactive graphics, maps, timelines, animations and sound tracks.
- Some writers are pairing up with computer programmers to produce ever more sophisticated interactive fiction and nonfiction in which one's choices determine what one reads, hears and sees next.

In a more or less narrow picture, any digitally-born piece of reading is by far the best alternative to a print paper when it comes to studying. However, it is worth pointing out that even those who prefer to read on screens are originally native paper readers, and as long as the existing application interfaces cannot address the shortcomings of screens regarding spatial landmarks, people will, under certain circumstances, keep returning to written papers.

To put all in a nutshell, these questions are worth considering for better future and developed outlook. Are we working so hard to make reading with new technologies like tablets and e-readers so similar to the experience of reading on the very ancient technology that is paper? Why not keep paper and evolve screen-based reading into something else entirely? How can teachers design his courses to meet all his learners' styles rather than selecting just one way of doing things? Why not to balance the use of technology and renew our teaching practice? These questions and others may pave the way to more innovative teaching practice and progress.the article, etc.).

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