
LITERACY AND DIGITAL INFORMATION ATTACHED TO LIFELONG LEARNING

O LETRAMENTO E A INFORMAÇÃO DIGITAL ALIADOS AO APRENDIZADO
AO LONGO DA VIDA

EL LITERACIA Y LA INFORMACIÓN DIGITAL ALIADAS AL APRENDIZAJE
A LO LARGO DE LA VIDA

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JITA: CE. Literacy.

RESUMO: O letramento digital é fruto de pensamento crítico e busca potencializar os métodos de estudo pela tecnologia da informação. A questão de pesquisa aqui tratada é compreender como o letramento digital pode contribuir para o aprendizado ao longo da vida. O objetivo é traçar um paralelo entre o letramento e a informação digital e o aprendizado ao longo da vida. Como metodologia fez-se uma revisão de literatura, nacional e internacional, sobre o processo de ensino e aprendizagem, letramento informacional, digital e aprendizado ao longo da vida. Esta pesquisa é de natureza descritiva e base qualitativa. Os principais resultados observados foram que o letramento digital leva a variadas práticas de leitura e escrita por meio das tecnologias da informação. Estas trazem novas possibilidades para educadores e educandos, profissionais e usuários, transcendendo o simples ato de decodificar sinais ou pesquisar na Internet. Ser letrado digitalmente leva à compreensão de que a tecnologia da informação vai além de novas formas de acesso à informação, mas também a novos processos cognitivos e formas de conhecimento. Chegando-se a esse patamar, cabe o árduo e prazeroso trabalho de manter-se atualizado ao longo do tempo, por meio de um esforço pessoal, que envolvem cursos e treinamentos como fonte de aprendizagem e desenvolvimento de trabalho em conjunto com especialistas. Em suma, há que se manter atualizado, acompanhando a evolução tecnológica, e para tanto, ser destemido das tecnologias e do uso das mídias digitais.

PALAVRAS-CHAVE: Letramento digital. Organização informacional. Competência informacional. Pensamento crítico. Aprendizagem ao longo da vida. Tecnologia da informação.

ABSTRACT: Digital literacy, the subject of study of this article, is the result of critical thinking and seeks to enhance the methods of study by information technology. The research question addressed here is to understand how digital literacy can contribute to lifelong learning. The goal is to draw a parallel between literacy and digital information and lifelong learning. As methodology adopted, a literature review was carried out, both nationally and internationally, on the teaching and learning process, information literacy, digital and lifelong learning. This research is descriptive in nature in a qualitative basis. The main results observed were that digital literacy leads to a variety of reading and writing practices through information technology. These bring new possibilities for educators and learners, professionals and users, transcending the simple act of decoding signals or searching the Internet. Being digitally literate leads to the understanding that information technology goes beyond new forms of access to information, but also to new cognitive processes and forms of knowledge. It is an arduous and pleasurable work to keep up-to-date through time, through a personal effort, involving courses and training as a source of learning and development of work together with specialists. In short, we must search lifelong learning, following the technological evolution, and for that, being fearless of technologies and of the use of digital media.

KEYWORDS: Digital literacy. Information organization. Informational competence. Critical thinking. Lifelong learning. Information Technology.

RESUMEN: El letramento digital, tema de estudio de este artículo, es fruto de lo pensamiento crítico, y busca potenciar los métodos de estudio por la tecnología de la información. La cuestión de la investigación aquí tratada es comprender cómo el letramento digital puede contribuir al aprendizaje a lo largo de la vida. El objetivo es trazar un paralelo entre el letramento y la información digital y el aprendizaje a lo largo de la vida. Como metodología se hizo una revisión de literatura, nacional e internacional, sobre el proceso de enseñanza y aprendizaje, letra de la información, digital y aprendizaje a lo largo de la vida. Esta investigación es de naturaleza descriptiva y base cualitativa. Los principales resultados observados fueron que el letramento digital lleva a variadas prácticas de lectura y escritura a través de las tecnologías de la información. Estas traen nuevas posibilidades para educadores y educandos, profesionales y usuarios, trascendiendo el simple acto de decodificar señales o buscar en Internet. El ser letrado digitalmente lleva a la comprensión de que la tecnología de la información va más allá de nuevas formas de acceso a la información, pero también a nuevos procesos cognitivos y formas de conocimiento. Al llegar a ese nivel, cabe el arduo y placentero trabajo de mantenerse actualizado a lo largo del tiempo, a través de un esfuerzo personal, que involucra cursos y entrenamientos como fuente de aprendizaje y desarrollo de trabajo en conjunto con especialistas. En resumen, hay que mantenerse actualizado, acompañando la evolución tecnológica, y para tanto, ser intrépido de las tecnologías y del uso de los medios digitales

PALABRAS CLAVE: Literacia digital. Organización de la informacional. Competencia informacional. Pensamiento crítico. Aprendizaje a lo largo de la vida. Tecnología de la informacion.

INTRODUCTION

Some authors misunderstand the concept of information literacy. The term 'information literacy' was coined in 1974 by Paul Zurkovisky, then president of the Information Industry Association, and he used the term for the US National Commission on Libraries and Information Science. Soares (2003, p. 32) states that the word literacy appeared for the first time in Mary Kato's book: "In the World of Writing: A Psycholinguistic Perspective" in 1986. International studies on the subject have intensified mainly from the last two decades of the last century, more specifically in 1990, in the National Forum on Information Literacy (NFIL), becoming stronger from 2004. The term arrived at the Brazilian territory at the beginning of this XXI century. Information Literacy has been translated in Brazil as 'informational competence', but authors such as Gasque (2006, 2008), Neves (2008) and Campello (2009) have chosen to use 'information literacy'.

Given the use of different words to designate similar concepts, it is necessary, first, to define what is information literacy. This term was initially considered by Caregnato, following the conceptual use of Espanha (GASQUE, 2012, p. 28), the first stage of information literacy. Defined as the decoding of an indicator in which the individual develops notions about learning instruments and processes, while informational literacy brings the idea of functionality and application of processes in everyday life.

Informational competence is the ability of the learner to mobilize his own knowledge. It is the product of learning, the result of knowing how to make use of information. Throughout the process of information literacy, learners develop competencies to identify the need for information, evaluate, seek and use it effectively and efficiently, considering ethical, legal and economic aspects. Informational competence is a product of literacy, and it is proposed that it is used as a demonstration of 'know-how', derived from the relations between the knowledge that the subject possesses, that is, the experience acquired by the practice and the reflection on the action (GASQUE, 2003).

In her thesis, Campello (2009, p. 75) adopted Doyle's definition (1992, p.4), emphasizing that "information literacy is the ability to access, evaluate and use information from a variety of sources." Dudziak (2003, p. 30) recommends three distinct categories: emphasis on information technology, on cognitive processes (cognitive design) or on learning (intelligence design). Campello (2009), however, starts from the perspective of Bruce (1997), making distinctions between information literacy conceptions, presented by seven characteristics: IT, information sources, information process, information control, the construction of knowledge, the extension of knowledge, and the conception of intelligence.

Once the terms are differentiated, here we will use the definition of information literacy as the "... process that integrates the actions of locating, selecting, accessing, organizing, using information and generating knowledge, aiming at decision making and

problem solving" (GASQUE, 2010, p.83). Therefore, informational literacy has the purpose of adapting and socializing individuals in the learning society. Its essence is the engagement of the subject in the learning process, in order to develop the necessary skills and abilities for the search and use of the information, in an effective way, grounding the decision making.

Leite and Botelho (2011, p.13) and Buzato (2012, p. 785) refer to the word literacy in the plural. For Leite and Botelho there are "multiple literacies", related to the varied practices of reading and writing, which bring new possibilities for educators and students, transcending the simple act of decoding signals.

1. DIGITAL LITERACY: CONCEPT AND PERSPECTIVES

According to Borges and Silva (2005), people are inserted in the Information Society when they are able to develop the necessary skills to access and use the information. With the advent of the Internet, society, economy and culture face their borders change, since "virtualization of reality designs new spaces and times at unusual speeds" (GASQUE, TESCAROLO, 2010, p. 42).

This work is justified in the scarce literature on digital literacy in Brazil. In an article, Rocha *et all* (2008, p. 147) concluded that information literacy was little inquired by the authors. They surveyed 13 national journals in Librarianship and Information Science between 2004 and 2008 that dealt with the subject, and evaluated that of the total of journals reviewed in 5 years, only 67% addressed the issue. Digital literacy is an even newer topic, with limited literature in Brazilian articles.

This research is the result of a review of the literature, both national and international, on the teaching and learning process, information literacy, digital and lifelong learning, used in our dissertation. This research is descriptive in nature and has a qualitative basis, aiming to draw a parallel between literacy and digital information and the lifelong learning. The problem that guides this article is to understand how digital literacy can contribute to lifelong learning.

On learning through Information Technology (IT), Soares (2002) discusses reading and writing practices in cyberculture, and emphasizes the idea that "different writing spaces and different mechanisms of writing production, reproduction and diffusion result in different literatures "(p. 156), recognizing the existence of various literacy processes.

Belluzzo (2005, p.1) emphasizes the importance of education under the focus of a new conceptual and practical paradigm, aimed at the formation of citizens capable of integrating into the digital age, whose fundamental principle lies in the development of competences for the use of information as well as the intellectual capacity to transform it into knowledge,

with an innovative condition of continuous and growing learning. All this facing the challenging technical-scientific advances of recent times. This author (p.15) states that the competence in information presents different conceptions that can be summarized in:

- digital - design with emphasis on information and communication technology;
- information itself - conception with an emphasis on cognitive processes;
- social - design with an emphasis on social inclusion, consisting of an integrated vision of lifelong learning and exercise of citizenship.

It is seen, then, that digital literacy involves not only the use of information and technologies, but the consciously and deliberately accompany by a change of civilization that deeply questions the institutional forms, mentalities and culture of traditional educational systems and especially the roles of teacher and student, which requires a profound mutation in the relationship with knowledge (LEVI 1999, p.172).

In accordance with the above, bringing the discussion to the scope of Information Science, it is seen that this science should focus on elements of three worlds: (1) the world of subjective reality, as a space of the framework and theoretical constructions, of the contents of conceptual signification related to the generation, interpretation and assimilation of information as a mediator of knowledge; (2) the world of the reality of objects and techniques, as a space for the material systems of document storage, instruments, norms and techniques related to the control of such aggregation, storage and retrieval of information for possible use; and (3) the world of the reality of cyberspace, as a place for cybernetic symbols, where digital documents are stored electronically, real-time collaboration networks, that is, the place of interfaces and communication between humans and the computer, a space where one can live by experience, but without presence (BARRETO, 2009, p.11).

Education has another individuality, transmission of information and culture, to teach to learn and to think, linking the knowledge acquired to employ this intelligence in professional life and in their daily life. A new paradigm emerges in the formation of citizens able to associate themselves with the digital age, whose principle is the development of skills to use information, and the intellectual capacity to transform it into knowledge in the context of a continuous and growing learning. In the digital world, the performance of the library is fundamental in the search for and achievement of quality in education, given the new demands of society (BELLUZZO, 2005, p.9).

In digital times one of the objectives of education is to provide and facilitate access to information coupled with the Internet, with an evaluation of the contents, knowledge of the technologies involved, and the adequate use of the information accessed (ROBREDO, 1989). In the transition from the physical to the virtual, it is necessary to reflect on the competences that must be developed in educators, librarians and students.

For Mey (1998), the relevance of literacy, both informational and digital, goes beyond ensuring that it is an information technology. It is knowing how to use these resources to apply them in daily life, for the benefit of the user. It is necessary to investigate the reason for searching the web, and to know the purpose of this information for life, in order to promote the acquisition of a (new) knowledge.

Soares (2002) has the view that digital literacy confronts digital technologies of reading and writing with typographic technologies, and warns that each one has its space and an effect in society, resulting in different concepts of literacy. She notes that digital literacy is used to refer to the practice of reading and writing made possible by the computer and the Internet. It continues presenting a new vision in the concept of literacy and the confrontation of digital technologies of reading and writing, with typographic technologies, emphasizing that each one has its space and an effect on the society, resulting in different concepts of literacy.

The concept of digital literacy emerged in 1997 with Paul Gilster in his book with the same title (*Digital Literacy*). Before him, in the 1990s, other authors used the term as an ability to read and understand informative items in hypertext, or in digital formats, that were becoming popular in that decade. For Gilster (1997) digital literacy is the ability to understand and use information in a variety of digital sources.

According to Ribeiro (2009, p. 4), the concept of digital literacy is complex and broad, once a person can be literate (have ability) only to use the Internet, accessing e-mails or talking on social networks, for example. Yet he believes that people need to learn to make use of technology to generate a benefit or convenience for them, such as when looking for jobs over the Internet, which involves the steps of reading an advertisement, interpret it and apply for the job via IT.

Xavier (1999, p. 1) considers the need for individuals to master a set of mental information and skills that must be urgently addressed by educational institutions, in order to quickly enable students to assume their citizenship in the new times, increasingly surrounded by electronic and digital machines. Gilster (2006 *apud* BAWDEN, 2008) says that the digitally literate is able to use and understand information coming from various digital media. In this sense, the digital literate has the ability to use this new technology in order to provide an improvement in their quality of life.

Souza (2007, p. 57) shows us the complexity of defining digital literacy to begin, according to her, by the lack of a truly validated term, since there are variations such as "electronic literacy, technological literacy, technological competence, among others ". The same author adds that "digital literatures constitute diverse forms of social practice that emerge, evolve, transform themselves into new practices and, in some cases, disappear, replaced by others" (SOUZA, 2007, p. 59, 60). She understands:

[...] digital literacy as the set of skills necessary for an individual to understand and use information in a critical and strategic way, in multiple formats, coming from various sources and presented through the computer, in a critical and strategic way, being able to achieve its goals, often shared socially and culturally.

For Buzato (2006, p. 9):

Digital literacies are sets of literacies (social practices) that support, interweave, and appropriately mutually and continuously through digital devices for specific purposes, both in geographical and temporally limited sociocultural contexts, and in those constructed by electronically mediated interaction.

In order to understand the fact that digital literacy accompanies the evolution of the technological, economic, social, cultural and political contexts of a given society, requires the mastery of written language (GASQUE and AZEVEDO, 2012, p. 3). It implies getting to know the digital generation, more and more apt to the changes brought about by the new technologies of information and communication.

In the book *Growing up digital*, Tapscott (2010) presents, by contextualizing, how the Internet reaches maturity, enabling a generation immersed in bits. It points to eight 'Internet generation rules', showing how the brain of this generation works: freedom, personalization, scrutiny, integrity, collaboration, entertainment, speed and innovation:

These young people value freedom - freedom to be who they want, freedom of choice. They want to customize everything, even their own job. They learn to be skeptical, to analyze what they see and read in the media, including the internet. They value integrity - being honest, respectful, transparent and fulfilling commitments. They are great collaborators, with friends, online and at work. They live at high speed. They love to innovate. This is the Internet Generation (TAPSCOTT, 2010, pp. 118-119).

In 2010, thought made more sense, but eight years later, it is seen that the integrity, honesty and respect of this virtual generation is under social questioning. Hidden behind the screen, some feel more comfortable to disrespect the other than they might have done face-to-face, and transparency has been brought to situations of undue exposure to private life.

Prensky (2011, p. 1), after writing an article entitled *Digital Natives, Digital Immigrants*, conceptualized technological generation as digital natives, being those who grew up surrounded by digital technologies. He compares the current and the previous generations. For the former, analogue technology, video cameras, wired phones, unconnected information (books) and dial-up Internet are outdated, old things. They are digital natives who grew up with digital technology and used it without fear, because they see it as a partner. Unlike the previous generation, termed by him as digital immigrants, those who need to adapt to digital technology. Shortly afterwards, the distinction between the terms native and digital immigrant was out of focus given the visibility of the 21st century being characterized by the

age of digital technology. It can be said that digital is the phenomenon of contemporaneity, causing significant changes in the professional, educational, family and social spheres.

Therefore, digital literacy tends to lead to the development of skills essential to the "handling" of tools that contribute to reading and writing using digital technology. Numerous authors approach the subject of technologies, with multiple concepts aimed at digital literacy, making possible the amplitude of the literature, and also, in a certain way, underpinning the relevance of being a digital literate, as we will show below. It should be emphasized that for the full development of digital literacy it is imperative that the information is organized, accessible, and that its user is updated enough to know how to find and use it.

2. WHY DIGITAL LITERATE?

Lanhan, Tuman, and Landow (*apud* XAVIER, 1999) believe that hypertext and the Internet enable integration across disciplines, blurring the boundaries between areas of knowledge. According to them, the hypertext user tends to process reading faster, and to develop 'creative' thinking, improving the ability to analyze and cross-reference information. It is necessary to remember that the use of some type of literacy in a society is not equally universal, since it is related to the conditions of socioeconomic and historical inequalities, lived around the globe.

For Xavier (1999, p. 3) this new form of learning, digital literacy, would differentiate itself by being more dynamic, participatory, taking the center of the teacher figure and rooting it to the independence, autonomy, immediate needs and interests of each one of the apprentices, who are frequent users of digital communication technologies. Digital literacy demands that the individual assumes pedagogical approaches that go beyond the physical limits of educational institutions.

It also reminds us that the screen is a space of writing and reading that brings not only new forms of access to information, but new cognitive processes, forms of knowledge and ways of reading and writing. That is, a new literacy, in the sense of being a new condition for those who read and write on the screen. And, according to Porto (2006), to consider the possibilities of the use of technologies in education one must consider the assumption that there must be a teacher preparation. It still reminds us of IT's educational potential, such as speed, individualized reception, interactivity and participation, hyper textuality, virtual reality and digitalization. Going further, we believe that digital literacy and IT use need to add value to the activities students or teachers carry out, or it would be "just" a change in the educational platform.

According to Moreira (2012, p. 4), the need for an individual to be digitally literate arose from the idea that "a digital source can generate many forms of text information, such

as images, sounds, and so on. Therefore, a new form of literacy was necessary in order to make sense of these new forms of presentation."

Internet users simultaneously fulfill the role of readers and authors, choosing the information they want to read, or with which they want to contribute, for example, via folksonomy, where 'folks' index content on the web. Cosette Castro (2012, p. 25), raises the question of technological changes arising from the transformation of the analogue world to the digital world, and says that they imply the need for new paradigms, "it is the passage of unidirectional communication, for bidirectional, dialogic and interactive communication." Learning is then seen by the socioconstructivist current as more durable and effective, allowing the student to absorb how to be motivated by a practical situation of need, without mechanical exercises pre-built for this purpose.

Terms such as web literacy, critical information literacy, critical digital literacy, metaliteracy, and hybrid pedagogy have emerged in the literature. Quoting Kris Shaffer, Mercurio and Bernstein (1988) say that skills linked to such subjects prove to be more than traditional literacy, requiring teachers and students to develop a more sophisticated understanding of how information is produced, consumed and disseminated online, especially with respect to the technological, sociological and psychological implications of digital connective media. Information workers should reflect on how to revise their own learning goals. Curricular changes may be necessary in order to help professionals and, consequently, users of information centers, developing the skills and partnerships need to implement the approach to digital literacy.

3. IF IT'S GOOD, WHY NOT?

A challenge arises: although we live in a digital age, encouraging teachers to deliver a technology-driven class is still not so easy or simple, many still have the conception of the educator-centered learning. It is necessary to add technological skills that alter the educational system and the training of teachers. It should also analyze its impacts on the valorization of information and knowledge as valuable goods (MOREIRA, 2012, p.1). For her, the Brazilian National Curricular Parameters - (PCNs) encourage the use of new technologies, together with the disciplines, but still have the resistance (or outdatedness that generates ignorance?) of the teacher in the use of technology, in a useful and conscious way, in the classroom. Each teacher has a different culture, causing different ways of thinking regarding the use of the computer as a pedagogical tool. For some teachers not using information technology has to do with the little infrastructure defined in schools, sometimes not having an IT professional to assist them.

The use of computer tools (computers, Internet and others) can be done during classes, facilitating the teacher's work and helping the students to understand. However, since Xavier (1999, p.2) there was a strong rejection of a new way of teaching, especially when students

begin to look for other sources of information, besides the teacher and the textbook. Siqueira (2004, p.194) points out that "the great quality of the Internet is interactivity, which makes possible the use of more dynamic and advanced methods of education". Thus, it is necessary to invest in this professional from initial training to continuing (lifelong learning), so that he can collaborate more for learning, bringing the new digital technologies to his way of teaching, integrating them with the techniques that are usually used.

As Moreira (2012) concluded, it is not enough to bring the computer into the classroom and teach a more interactive lesson. It is important to convey the content clearly, without letting the brightness of technology erase the figure of the teacher. As already mentioned, access to IT does not ensure the mastery of its tools or certify the understanding of the resources offered and it is not the case to replace the teacher for the machines. The former's competence should encourage students' critical learning and thinking. The activity of teachers will focus on the follow-up of learning, instigating the "exchange of knowledge, relational and symbolic mediation, personalized piloting of learning paths" (LÉVY, 1999, p 171). For him "the teacher becomes an animator of the collective intelligence of the groups that are in his charge".

There is a generation of professionals who have begun, and continues to take their professional life away from the digital world, because they 'fear' IT, or lack knowledge of how to use it, and this has been an obstacle to the development of digital literacy.

4. LIFELONG LEARNING

On digital literacy Beluzzo (2001) raised three components:

- active learning to impact performance;
- lifelong learning;
- critical thinking.

In the present, it is necessary to learn/have specific skills that are organized in the process of information literacy, a foundation for information management, based on lifelong learning, which should take place throughout people's lives, encompassing all the disciplines, learning environments and levels of education (ACRL, 2000).

For Dudziack (2003, p. 28 *apud* ROCHA, 2008), the process of information literacy involves long-term learning "a continuous process of internalization of the conceptual, attitudinal and skills fundamentals necessary ... to provide a lifelong learning."

One question that arises about lifelong learning is: where does it come from? How do you achieve it? In Gama's dissertation (2013), she raises three ways of obtaining it, which would be through:

1. personal effort;
2. work, or with experts;

3. courses and training.

In the analysis of the data of her study (GAMA 2013, p. 439) she concludes that, with regard to the origin of learning: "23% indicated courses and training as the source of learning, 31% identified that this knowledge derives from personal effort, 23% said they learned at work or with specialists ... " Further on (GAMA 2013, p. 441), asked about how to use specialized online services and how to manipulate digital texts, images, and data transfer from the original formats to a new context, again respondents said they primarily depend on personal effort (37%), but the second and third answers differed from the previous ones, and they said they did not waive the need for courses or training (27%) and learning that occurs at work or with specialists (23%). Thus, it is concluded that personal effort is the driving force of lifelong learning, not excluding interaction with colleagues and specialists, and participation in courses and training.

The premise of personal effort is in agreement with the theory of literacy, through the thesis of one of its founders, John Dewey, who has in reflexive thinking the part of "action", the practice of learning, which also relates to another of his theories, of experience, told not only in years of life, but especially in learning, which is not only to memorize but to experience knowledge. Lifelong learning interacts with professional practice and reflection on the action of learning. It is learning to think, taking into account the experiences and information acquired in living, which encompass attitudes, moral dispositions and the cultivation of aesthetic appreciations. It is the set of permanent changes arising from the relations between the new information, the reflection and the previous experience, without disregarding the individual's interactions with the social environment (DEWEY, 1979). In short, there is no way to discuss informational and digital literacy and concepts related to it, without referring to the long-term learning process.

According to Behrens (2000, p.67), "humanity has been challenged to witness two important transitions that profoundly affect society: the advent of the knowledge society and globalization." The world lives, according to the author, a process of paradigmatic change that affects all institutions, especially education, at various levels, including and especially in universities. Considering these transformations, driven by the new information and communication technologies, "people need to be prepared to learn through life, being able to intervene, adapt and create new scenarios" (BEHRENS, 2000, page 68).

Being digitally literate in the learning society implies knowing how to deal with the complexity that involves information, which is increasingly generated in an unlimited way. People no longer need to be static in front of a computer, since mobile applications make it possible to connect all the time. In this sense, lifelong learning consists of learning to learn all the time, taking into account the evolution of information and communication technologies, taking ownership of them as much as possible. A digital literate is being able to follow the

information in the most diverse virtual spaces, learning from the changes, dominating the resources available to the information:

Among all the technologies created by human beings, those related to the capacity to represent and transmit information - that is, information and communication technologies - are of particular importance because they affect practically all areas of people's activities, from the forms and practices of social organization to the way of understanding the world, to organize this understanding and to transmit it to other people (COLL, MONEREO, 2010, p.17).

Lifelong learning is a concept that complements the theory of literacy, in times of great volume of information such as the one we live in. According to UNESCO (ABID, 2004), the capacity to deal with information becomes a pre-requisite for knowledge, and the development of this competence is a determining factor for the integration of people into the work, social and cultural world.

The theme is also connected with Dewey's theory of reflexive thinking, which is that critical sense to be awakened in the human being, in order to enable the construction of the skills necessary for the search and use of information. Gasque and Cunha (2010) emphasize Dewey's contribution to education by directing knowledge to personal and collective development, giving rise to the perspective of an ethical knowledge, fully committed to society: "Deweyana philosophy" comprises the free person to choose and take decisions in a social democratic process of supposed equal opportunities for all" (GASQUE, CUNHA, 2010, p.140).

In the conclusions of her research, Gama (2013) states that informational competence is a result of lifelong learning in a cumulative way, that is, each new knowledge joins the previous one, preparing the individual for solving more complex problems. The author synthesizes that it is self-motivation and self-determination that are responsible for learning continuously.

For Grose (2014), technology supports the constructivist approach, and teaching practices supported by digital technologies activate the kind of learning advocated by the learning sciences, that require significant changes in pedagogical issues. The use of technologies with students is only successful when effectively used as a tool to support pedagogical practices, and these are linked to authentic teaching and learning.

Lifelong learning is becoming an economic imperative, technological change requires stronger and more continuous connections between education and employment. Research has found that 54 percent of working Americans think it will be essential to develop new skills throughout their lives among adults under 30, up from 61 percent. Other research showed that 93% were willing to spend their own money on additional training, given the importance of keeping themselves up to date (THE ECONOMIST, 2017).

Schwartz et al. (2018) noted that the millennium professionals enjoy collaborative learning, work well in groups, are technically intelligent, they enjoy clear expectations and expect frequent and individualized feedback on their performance. According to the authors, educators should determine what works best for each individual, create a culture of verification and, most important, nurture this spirit of lifelong learning.

In sum, continuing education is an important issue, with extraordinary implications for information professionals, especially librarians who increasingly work in mutant (physical and virtual) libraries and culture rooted in digital culture.

FINAL CONSIDERATIONS

In the digital world with organized information, the message is sent and soon received by the social subjects, who have the possibility to respond and interact in real time, radically transforming the relationship between the two scopes, using different technological platforms. Digital literacy serves to make individuals economically more productive, and serves those who postulate the development of analytical and critical capacity of the citizen as a major objective of acquiring any type of literacy. With so much knowledge available in digital media, an issue that cannot be forgotten is the concern with the preservation of all this content in digital media. Forgetting this is putting at risk of loss all this explosively available content, every minute, in the digital databases.

The different modes of learning in the knowledge society are a challenge to be recognized in the most diverse educational spaces, especially in universities, still characterized by the traditional model of teaching, with lectures, without diversified interaction between the student and the teacher. However, it is necessary, in the breadth of information, to recognize the relevance of information literacy as well as digital literacy, suitable to enable the individual to build a solid, systematic, relevant, innovative and, above all, lifelong knowledge. In the same way that the information is being fiercely divulged, the professional update must follow its example, accompanying the technological evolution and without fear or prejudice with the technology.

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