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DIGITAL POSTERS FOR DIGITAL LITERACY DEVELOPMENT

CARTAZES DIGITAIS PARA O DESENVOLVIMENTO DA LITERACIA DIGITAL

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Abstract

This article deals with the construction of digital posters in the classroom, in the training of mathematics teachers, as a differentiated approach, exercising aspects related to Literacy Digital. The material of this article is an extraction of the activities and reflections of the fourth meeting held during the continuing education entitled Digital Technologies in the Mathematics classroom, for mathematics teachers at public schools in the city of Canoas. The research is positioned in a qualitative analysis and was developed during the training of mathematics teachers, composed of synchronous and asynchronous meetings. The training that gave rise to the analyzed data uses several technologies, with focus on authorship and critical development defended in the concept of Digital Literacy. As a result, we have 12 digital posters that highlight aspects such as Digital Literacy skills and criticality, which is a central feature of Digital Literacy concept. We understand that the speech and position of the teachers, shown during the training, already indicate a reflection in their practice. Teachers realize that among the skills related to technology, there is no order of importance or attributes, but all of them have their relevance and that they must be worked on according to the possibilities of the classroom.

Keywords: Computing and Education; Digital Literacy; Skills Learning; Teacher training.

Resumo

Este artigo trata da construção de pôsteres digitais em sala de aula, na formação de professores de Matemática, como abordagem diferenciada, exercitando aspectos referentes à Literacia Digital. O material deste artigo é um recorte das atividades e reflexões do quarto encontro realizado durante a formação continuada intitulada Tecnologias Digitais em sala de aula de Matemática, para professores de matemática da rede pública de Canoas. A pesquisa está posicionada em um viés qualitativo e foi desenvolvida durante a formação de professores de matemática, composta por encontros síncronos e

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assíncronos. O treinamento que deu origem aos dados analisados utiliza diversas tecnologias, com o viés de autoria e desenvolvimento crítico defendido no conceito de Literacia Digital. Como resultado, temos 12 pôsteres digitais que destacam aspectos como habilidades em Literacia Digital e criticidade, que é uma característica central do conceito de Literacia digital. Entendemos que o discurso e a posição dos professores, mostrados durante o treinamento já indicam uma reflexão em sua prática. Os professores percebem que entre as habilidades ligadas a tecnologia, não há ordem de importância ou atributos, mas todas elas têm sua relevância e que devem ser trabalhadas de acordo com as possibilidades da sala de aula.
Palavras-chave: Informática e Educação; Literacia Digital; Aprendizagem de Habilidades; Formação de professores.

Introduction

In this work, we understand that the use of Digital Technologies in the classroom are necessary components since they are provided in legal normative documents such as the new Base Nacional Comum Curricular (BRASIL, 2018). However, we understand and defend that its practice must transact the mere use of Digital Technologies, in order to achieve the development of Digital Literacy.

We present a review of studies that we think are significant in the scope of our research, in order to understand the ideas about Digital Literacy advocated by different authors and how teacher training is associated with it. This review is based on publications that have led us to research how Literacy is being worked on in national and international research.

We highlight that there is a need for teachers to develop their Digital Literacy for personal empowerment and better use of technologies in the classroom. By bringing these habits into practice, we understand that there is the possibility of their students developing their own Digital Literacy. Moved by this purpose, we carry out a continuous training with the objective of providing teachers moments of reflection on their practice involving this theme and, thus, placing them as active subjects in the proposed actions, regarding Digital Literacy.

In this section, we will approach one of the activities developed in our training: the construction of digital posters, starting from the reflection and discussion of a paper. We work focusing on the use of posters in this perspective, however, we understand that they offer many other potentialities, either for the theoretical discussion as occurred in our training, as for the exercise and reflection on didactic contents.

The training that gave rise to the analyzed data was composed of face-to-face and distance-mode meetings with Mathematics teachers, in which several technologies were used, with focus on of authorship and critical development defended by the concept of Digital

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Literacy. The material of this article is an extraction of the activities and reflections of the fourth meeting, the one that followed the reading of the text referring to the concept of Digital Literacy.

We presented, in the State of the Art section, a review of works that we think are significant in the scope of our research, in order to understand the ideas about Digital Literacy advocated by different authors and how teacher training is associated with it. This review is based on publications that have led us to research how Literacy is being worked on in national and international research.

In the Theoretical Reference we focus on authors who we think are relevant when reflecting on the use of Digital Technologies in the classroom and the criticality that we should develop. In the Methodology section we presented the methodological contributions that guided our study. In the Production and Data Analysis section we presented the data obtained during teacher training developed in the municipality of Canoas, State of Rio Grande do Sul, Brazil. In the Final Considerations section, we pointed out some situations and relations that we believe are pertinent in this research.

1. State of the art

The emergence of a knowledge-based society implies, in the context of the European Union, that every citizen must be digitally literate and have basic skills to be better off, in terms of equal opportunities, in a world in which digital functions are proliferating (RANTALA; SUORANTA, 2008). In order to do that, there was a need to mobilize the educational and cultural communities, as well as the economic and social agents of Europe, to accelerate the changes in education and training systems in search of Europe's transition to a knowledge-based society.

In the Norwegian Knowledge Promotion Reform, digital skills were elevated to the status of being the fifth basic skill to be developed by the individual. Being able to use digital tools is defined alongside other basic skills such as reading, writing, basic mathematics and spoken word use (RANTALA; SUORANTA, 2008).

Coming from a construction of projects and programs, the Norwegian government presented, according to the same author, ambitious national goals and priorities defined by the vision of a 'digital competence for all'. As a way of influencing the quality of education, encouraging learning and learning results, the government has established the program with four main objectives that would be in charge of the Ministry of Government Administration

and Reform: Norwegian educational institutions should have access to high-quality infrastructure and services in 2008, digital competence will be key to education at all levels in 2008 , Norwegian education system should be among the best in the world in this area by 2008, Digital Technologies should be an integral policy instrument for innovation and the development of the quality of Norwegian education in 2008 (RANTALA; SUORANTA, 2008).

Researchers defends the concept of Digital Literacy as the individual's ability to develop both critical understanding and interpretation of media information, as well as the ability to make a value judgment and produce their own media (SILVA; RAMOS; BATISTA, 2016). The article of Silva, Ramos and Batista (2016) highlighted the challenges imposed in the training of teachers for Digital Literacy, and the main one listed was the generational shock of "digital immigrants", understood in the research as offline teachers; and the "digital natives" understood in the survey as students online. In this way, using an analogy, teachers would be visitors in a world in which connected young people are already residents.

The methodological procedures adopted in the research were classified as a case study, conducted with teachers who are technology-mediated undergraduate students of Mathematics, Physics, Chemistry and Biology at a public university in the countryside of Brazil. The degree course, in the distance modality, belongs to the Federal University of Tocantins, which belongs to the Open University system of Brazil and offers four degrees (SILVA; RAMOS; BATISTA, 2016).

The courses used for data production are semi-face-to-face, with mandatory face-to-face meetings at the centers for learning evaluation and thematic seminars; and course content is made available through a Virtual Learning Environment. The sample was delimited to 32 students enrolled in the course, in two distinct years of adherence. The choice for these students aimed to verify whether the course time favored the development of Digital Literacy of these teachers.

The methodological instruments were questionnaires and semi-structured interviews with the aim of understanding the impacts of technology-mediated training on Digital Literacy of teachers. The study sought to know the profile of technology used by the participants in their daily life and pedagogical practice through a questionnaire elaborated in Google Docs.

As a result, it was presented that online teacher training contributes to the Digital Literacy of teachers, depending on the proposal of the training offered. For research, training must be a balance of the instrumental use of technology, so that the teacher can integrate the

media into pedagogical practice and that the proposals offered consider that technologies structure the ways of thinking, communicating, dealing with information and building knowledge (SILVA; RAMOS; BATISTA, 2016).

2. Theoretical reference

Technological innovations and the growth of global media are some factors that have contributed to young people growing up in a media-dominated world. Such factors may be positive or negative (KELLNER; SHARE, 2011). While technology has enabled the free flow of information in social networks and in global activism, in this technology, there is also the potential for corporations and governments to increase their control over the media, restricting information and appropriating these new tools for profit and controlling people.

> Based on the fact that television shows, cell phones, video games, music and even toys are transmitters of culture, not only telling, but also selling the stories of our times. It is nowadays more than ever that children need to learn how to critically question the messages of what is right and how to use the wide range of new tools available to express their own ideas and participate fully. (KELLNER; SHARE, 2011, p. 315)

The authors also point out that knowing how to use technologies is imperative in our social context, which contributes to the need for the evolution of a technology-oriented education, considering that changes have been reformulating the way in which the individual thinks and restructures himself as part of society, whether at a local or global level.

The diversity of ideas and conceptions is growing as an increasing amount of information becomes available through the media and an increasing number of people travel the world and migrate. In a consequent antithesis, there is a reduction in diversity as cultural colonization and homogenization spread throughout the global spaces with the ease provided by Digital Technologies. Reflections such as these are necessary and a consequence of Digital Literacy.

The term Digital Literacy was first used by authors in the mid-1990s, but made official by Paul Gilster in his book Digital Literacy as:

> [...] the ability to understand and use information in various formats from a wide range of sources when it is presented through computers. The concept of Literacy goes beyond simply being able to read; always meant the ability to read with meaning and understand. It is the fundamental act of cognition. Digital literacy also extends definition limits. (GILSTER *apud* MARTIN, 2008, p. 168)

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Research indicates that Digital Literacy implies much more than a functional issue of learning how to use a computer, a mouse, and a keyboard, or how to conduct online research (BUCKINGHAM, 2008). Thus, the use of Digital Technologies, within the scope of Digital Literacy, is related to logical and critical thinking of high-level information management skills and well-developed communication skills. Thus, it is understood as the use of technologies to recover, evaluate, store, produce, present, exchange information, communicate and participate in networks using the Internet.

Aspects as highlighted previously influence the development of the individual as an active being in society and are phenomena that pass through the singular and take plural proportions. One's concern is related to collectivity and begins in a formal aspect in the school environment. Students, as active beings, can reach different levels of domains in different technological tools, such as: children learn to locate and select material, how to use browsers, hyperlinks, and search tools. However, the school, as a formal learning environment, must instigate to overcome this mere use for the development of Digital Literacy (BUCKINGHAM, 2008).

From the perspective of this research, we highlight the importance of the student take on a role of authorship in the face of his own cognitive development. We understand learning as a constant process that begins in a non-formal environment (whether in the student's home, on the street or virtual environments) and that is improved when it begins its formal training in the school environment. Among these processes, in formal environments, we highlight the role of the teacher as a mediator of experiences and reflections.

Even if young people can develop these skills on their own, without adult intervention or supervision, since children and young people often know more about these new media environments than most parents and teachers, it is the adults' role to mediate. In the classroom we have a pedagogical approach. Thus, Digital Literacy transcends the simple handling of Digital Technologies, it goes into something deeper and more problematized, so that it becomes the role of the teacher to involve students in critical dialogues that help to articulate more rigorously their intuitive understandings of these digital experiences (JENKINS *et al.*, 2009).

Some skills related to the development process of Digital Literacy (JENKINS *et al.*, 2009) that can be used by teachers in the classroom are highlighted below. For a better organization to the reader, we describe them in Chart 1.

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CHART 1. Skills

Skills	Description
Play	Try the digital media and use it for problem solving.
Performance	Act and change actions in digital environment with the aim of improvising and discovering new things.
Simulation	Interpret and build dynamic models based on the real world.
Appropriation	Analyze and reorganize digital content to use it.
Multitasking	Analyze the environment in order to understand important details that surround it so to use them simultaneously in different technologies.
Cognitive Distribution	Interact meaningfully with resources that enable the individual's personal growth.
Collective Intelligence	Analyze and build personal conclusions on a given subject and be able to compare them with their partners using a critical analysis in search of a common goal.
Judgment	Evaluate the reliability and credibility of different sources of information since the digital environment is full of them.
Transmedia Navigation	Follow information flows across multiple platforms for interaction and sharing of differentiated information.
Networking	Search, synthesize and disseminate information.
Negotiating	Moving around different communities, discerning and respecting different perspectives while following alternative rules.

Source: (JENKINS *et al.*, 2009)

Thus, the school must take over the role of preparing future students for the challenges of this new century, and one way to accomplish it would be through the autonomy that can be achieved while working with the skills related to Digital Literacy.

When we enter the scope of Digital Technologies, these ideas become cyclical with the student as a digital content producing agent that, with the mediation of the teacher, will reflect in a critical position about its creation and a later disclosure of this material for the dissemination of knowledge and the evaluative feedback of partners.

These conceptions are in line with authors who discuss movements that are taking place in the school environment, as consequences of the use of technologies and the use of the Internet. These movements are called remixing, that is, content change processes that cover the

development of knowledge, based on existing content, with a perspective directed to content transformations. In this way, students create something, not predefined, based on content shared by their partners with a new interpretation (ERSTAD, 2008).

Aligned with these ideas of authorship is the constructionist perspective. Constructionism can be considered a strategy for education that has as one of its central focuses the use of technologies. This view considers cognitive development as an active process of construction and reconstruction of mental structures, in which the student actively participates in the development of projects (PAPERT, 1994).

However, authors discuss three barriers in the use of technologies, so that they are approached in a critical and reflective way. The first is the barrier of participation, which consists of unequal access to opportunities, experiences, skills, and knowledge that help in social participation. The second are transparency problems, which cover the challenges faced to learn to see the ways that media influences the world. The third barrier is called ethical challenge and deals with the breaking of traditions regarding professional training and socialization (JENKINS, 2006).

Thinking about this perspective, we developed a training course that encourages situations of reflection and construction of teachers, in order to make them aware of the importance of Digital Literacy in their classroom and, consequently, the institution of a culture directed to this practice.

3. Methodology

The research relies upon a qualitative analysis that consists of a social research centered on individuals who are inserted in an environment where the researcher is also part and has an active role, in this way the research is flexible and feasible to change. The observer needs to reflect on his records, separate the relevant details, organized notes and use rigorous methods to validate them (GOLDENBERG, 2005).

Thus, the training course, entitled Digital Technologies in the Mathematics classroom, was built based on and aiming at the process for the appropriation of a digital literacy culture, linking mathematical, technological, and pedagogical aspects. The activities presented in the training course were developed in the light of the dimensions with tools proposed by the researcher and with openness to the doubts and curiosities of the group.

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The meetings took place in person and online (synchronous and asynchronous), lasting 40 hours, starting on May 3rd, 2018 and ending on August 16th, 2018. We highlight that the continuing education course was sponsored by the Coordination for the Improvement of Higher Education Personnel (CAPES), for the development of the research; supported by the Lutheran University of Brazil (ULBRA), we nominally mention the Graduate Program in Science and Mathematics Teaching (PPGECIM), for technical, structural and pedagogical support; and the Department of Education of the Municipality of Canoas, by encouraging its teachers to join the course and improve their training.

The dissemination of the training course occurred through the Municipal Department of Education, by contacting the schools of its network. At this time, a link was made available for the registration of teachers through the response of a form, in which the first 25 enrolled teachers were contemplated with the opportunity to participate, and from this initial group, 14 teachers completed the course with equal or greater achievement of 85% frequency.

This article brings a part of the data produced in this training, where digital posters created by teachers and their perceptions of the tool they created are analyzed. We relate the situations experienced during the training with aspects that indicate evidence of the process for the formation of Digital Literacy concept.
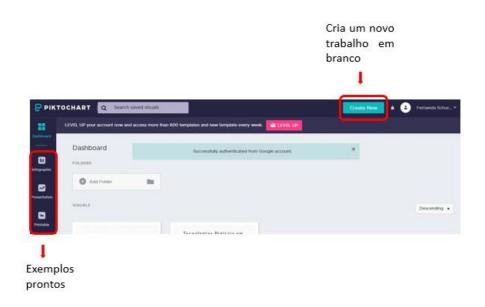
From the Qualitative perspective, it is considered the existence of a dynamic relationship between real world and subject. This methodology is descriptive and uses the inductive method for synthesis and analysis, the process experienced by the researcher or the researched is the main focus of reflection (CHIZZOTTI, 2003). In this form/type of research, the meaning that people give to things and their lives is analyzed, reflecting the process experienced.

In addition, we justify the approach highlighted by providing the possibility for the researcher to interpret the phenomena that originated by the production of data from their own subjective perspectives. Thus the "qualitative researcher must develop a sensitivity to situations or experiences considered in their entirety [...]" (ESTEBAN, 2010, p. 129).

The Piktochart tool was used to produce/generate the data analyzed in this article. It is a web application that allows users without experience to create infographics, posters and presentations. Even though it is available, so far, only in the English language, the application is easy to navigate because of the use of icons and examples along with English words. We chose it due to its usability and the free access linked to the Google account, which was already used in training because of the Virtual Learning Environment.

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When logging into the website, the tool's home page makes it possible to create a new work or edit an existing layout, as we see in Figure 1.
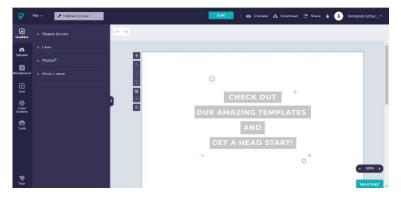
FIG. 1: Home Piktochart

Source: authors

With the simple homepage, as we see in Figure 2, the users can edit backgrounds, fonts, Figures, and sizes to meet their expectations.

FIG. 2: *Layout* Piktochart

Source: authors

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One of the main positive aspects of using digital posters is the optimization of time, since many arts are ready and available in tool repositories, as we see in Figure 3, leaving a longer time for reflection and intellectual construction.

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FIG. 3: *Layout* Piktochart

Source: authors

Continuing, we analyzed data produced in our teacher training course, using the methodology described and the Piktochart tool.

4. Results

Researchers have pointed out that the school should use different technologies for accessing information, constructions, and reflection, but "to use the Internet, computer games or other digital media to teach, we must first teach students to understand and criticize these media: we cannot consider them simply as neutral means of providing information (BUCKINGHAM, 2008, p.73)"

Thus, the author says that reflection, within the scope of Digital Technologies, should be seen as an indispensable prerequisite to be worked in schools and education as a whole, so that technologies do not play a merely functional or instrumental role, but as a potentiating agent of new experiences and constructions.

In the search for new experiences alongside the teachers participating in the course, we worked with an update of a common practice used in the classroom: the construction of digital posters. As we understand that the best learning happens when individuals build and reflect on their practice, we believe that the development of posters, as proposed in this article, makes it possible to reflect and reconsider their ideas, which is important for teachers and, consequently, for students in school.

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The application Piktochart was used in our training in a face-to-face meeting, but we believe that the process in our formation, that preceded its use, needs to be contextualized better in order to be understood by the reader.

In our continued education, teachers came across a new concept, Digital Literacy, at the previous online meeting, in the form of a theoretical text they learned from and reflected on the theme. In the face-to-face meeting that followed the theme was taken up orally by the researcher who questioned whether everyone had understood the text, whether doubts had arisen and what are the most relevant points they highlighted on the subject. At this time, few teachers wanted to speak, merely stating that they had read the material and found it easy to understand. When asked what Digital Literacy was, no one wanted to speak out, prevailing absolute silence in the classroom.

In the following moment, the researcher presented what the digital posters would be and proposed to teachers the individual construction of a poster with the theme Digital Literacy, highlighting what it was and its relevance to the classroom. We noticed at this moment that the room came to life, the teachers promptly set themselves in motion, feeling more willing to 'talk to the machine' than to speak in public. This feeling is often experienced by our student who is inhibited from public speaking and prefers to explain his thoughts visually.

Seventeen digital posters were delivered to the Virtual Learning Environment at the end of the face-to-face meeting. Ten of them cited skills as the dominant aspect of Digital Literacy in the classroom, five cited criticality and three pillars for education, as we see in the 17 digital posters that were delivered in the Virtual Learning Environment at the end of the face-to-face meeting as we see in Figure 4.

FIG. 4: Diagram of results of posters

Source: authors

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This information is in line with authors who highlight that the use of technologies is related to the logical and critical thinking of high-level information management skills and well-developed communication skills. Just as they understand the use of technologies to recover, evaluate, store, produce, present, exchange information, communicate and participate in networks using the Internet. We also observed that the skills, as organized by Jenkins *et al.* (2009) were mentioned nine times by the teachers in the data produced by the group.

We highlight in Excerpt 1 the discussion of teachers that was opportune during the development of the activity, a moment in which we understand that digital posters provided opportunities for reflection, debate, and construction of the concept of Digital Literacy.

Excerpt 1 - Discussion about skills
Teacher 4: I put Judgment as the most important because you must understand what is happening to make it. Then I put Simulation, Multitasking, Collective Intelligence and Play.
Teacher 3: I put play first, right?
Teacher 5: I put Play, Distributed Cognition, Multitasking, Simulation and Collective Intelligence. Because I am a physical education teacher, and it all culminates in playing for me. My students use the body a lot, so even if we do other things, we always end up in the body.
Teacher 4: We are actually from the same school (Teacher 5, Teacher 6), and we discussed it there at school. First, I had also put play, I thought better and put Judgment.
Teacher 3: which one is right?
Researcher: Is it necessary to have a right one?

[Silence]

Teacher 4: Look, I don't think there is a right one, it depends on the activity we are doing and what we want with it. I can do an activity that needs and develop a certain skill set and the [Teacher 3], who is from a different area will prioritized other skills and each one is right in its own way.
Researcher: This is a good observation, and I also highlight that, two teachers from the same area with the same content can work completely different skills, that is why it is important to have a clear goal, this is what will guide our practice as a teacher.

In Figure 5 we can see the poster resulting from this discussion. We reiterate the optimization that the tool provides, since the teacher in question used ready-made arts that were available by the program, editing them with the information he thought relevant to be highlighted. This moment is when we understand that teachers are using their critical thinking when making value judgment of the information highlighted to the detriment of other

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information analyzed, which is in line with Buckingham (2008) and Bawden (2008) who have addressed the need to develop criticality in relation to the use of Digital Technologies.

FIG. 5: Poster developed by Teacher 4

Source: search

In this activity, only Teacher 8 presented evidence of having associated social action, as a result of the process of reflection provided by technology, towards a social transformation. Figure 9 presents a Digital Poster clipping developed by the teacher in which the highlight is social transformation.

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FIG. 6: Poster developed by Teacher 8

Source: search

Fitzsimmonns, Suoranta and Uusiautti (2019) pointed out that, for a transformation to take place in the culture of teachers and students, it is necessary to take an active initiative in their own adaptability process so that they can experiment in learning environments. Teachers and students need to become active in transformation through active engagement in such a way as to become part of the learning process.

We believe that the evaluation of the activity is an indispensable item for teachers as another opportunity to improve their criticality, and for us, as researchers, to analyze the proposed activity. Thus,14 teachers finished the continuing education course, 11 of them evaluated the Piktochart tool. Positive and negative points regarding the use were acknowledged by the teachers.

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Among the positive aspects pointed out, such as easy functionality of the application, the diversity of resources and the free availability were repeated in the teachers' speech. The negative points identified were absence of the Portuguese language and the constant need of internet for its use.

Among the 11 teachers who performed the evaluation, four of them stated that they did not see negative points in the tool. We highlight teacher 2's speech "The digital posters activity was very rich, Fernanda showed us the various ways to use this tool, in which it is possible to make many digital posters, in a simple and fun way! Love it! I did not see any downsides to this tool."

There are already international movements towards the requirement of the insertion of Digital Literacy in the training of teachers at levels of initial and continuing education, by governments in which research movements and legislation regarding technologies are more advanced. This training would happen with the inclusion of critical technology modules making it an integral part of all lifelong learning for teachers (EUROPEAN COMISSION, 2018).

European institutions and national governments recognize Digital Literacy as part of the Basic Curriculum, gradually adding it to school curricula at all levels and adding it to the measures that determine school rankings, as they are already included in the PISA exam rankings from OCDE. Digital Literacy becomes a declared priority, with the aim of integrating critical media analysis into essent]ial educations guaranteed to all students in Europe, with formal status in national school curricula (EUROPEAN COMMISSION, 2018).

For all this to occur, we point out that actions are necessary to promote a reassessment and adjustment of educational policies in Brazil, with the insertion of essential skills in our curriculum, because they are crucial to resist digital disinformation and direct the individual to digital literacy.

Final considerations

This article addressed the construction elaborated by teachers with the help of Digital Technologies in the development perspective of Digital Literacy, in the context of teacher continuing professional development. In our research, it is clear that this form of work also presents limitations in (i) physical aspects: available internet, suitable computers and available hardware; and in (ii) cognitive aspects: Digital Literacy of the individual for the construction of critical knowledge. Because we understand that teachers are experiencing a process of

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building Digital Literacy, which is not stagnant. But it is progressing with the conscious and critical use of different technologies.

Having said that, we understand that the data presented and analyzed during this article shows evidence of an understanding of the concept of Digital Literacy, when teachers made their digital posters showing what it was and its relevance to the classroom. We call attention that 12 of the digital posters highlighted aspects such as skills that are indications of Digital Literacy and 5 pointed out criticalities, which is a central feature in the concept of Digital Literacy.

We understand that the speech and positioning of teachers already indicates a reflection in their practice, when they realize that among the skills there is no order of importance or attributes, but that they all have their relevance and that they should be worked according to the possibilities that the activity provides and the teacher's objective with them. We noticed reflection in Excerpt 1, in which Teacher 4 says: " Look, I don't think there is a right one, it depends on the activity we are doing and what we want with it."

We also observed that the training went beyond the classroom walls, when the teachers stated that they discussed and reflected their questions in their home schools, showing a concern with the execution of the task, which led them to reflect upon their classroom. An aspect that we noticed in the speech: "We are actually from the same school (Professor 5, Professor 6), and we discussed it there at school [...]". The teachers made it clear that the concept of Digital Literacy built by them, until now, was closely linked to items such as cognitive skills and criticality, however few showed evidence as to the aspect of social transformation.

We highlight that the data produced by this group of teachers is very particular, resulting from their personal and classroom experiences. We hope, in our next stage of the project, to contact these teachers to see if the Piktochart tool was used in the classroom and if aspects of Digital Literacy permeate the teaching practice, thus looking for evidence of a culture of Digital Literacy in the classroom.

References

BAWDEN, D. Origins and Concepts of Digital Literacy. In: **Digital Literacies—Concepts, Policies and Practices Concepts, policies and practices**. 30. ed. New York: Peter Lang, 2008. p. 17–32.

BRASIL. **Base Nacional Comum Curricular**. Brasília: MEC, 2018. v. 44

INTERFACES DA EDUCAÇÃO

BUCKINGHAM, D. Defining Digital Literacy—What Do Young People Need to Know About Digital Media. In: **Digital Literacies—Concepts, Policies and Practices**. New York: Peter Lang Publishing, Inc., 2008. p. 263–276.

CHIZZOTTI, A. A pesquisa qualitativa em ciências humanas e sociais: evolução e desafio. **Revista Portuguesa de Educação**, v. 16, p. 221–236, 2003.

ERSTAD, O. Trajectories of Remixing: Digital Literacies, Media Production and Schooling. In: **Digital Literacies—Concepts, Policies and Practices**. New York: Peter Lang Publishing, Inc., 2008. p. 180–202.

ESTEBAN, M. P. S. **Pesquisa Qualitativa em educação**. São Paulo: Artmed, 2010.

EUROPEAN COMISSION. A multi-dimensional approach to disinformation. **TNS Political & Social European Comission**, v. 2, n. 1, p. 44–51, 2018.

FITZSIMMONNS, R.; SUORANTA, J.; UUSIAUTTI, S. Mind-blowing and desirable but challenging : Student perceptions of critical pedagogical teaching in university. **International Journal of Research Studies in Education**, v. 8, n. 2, p. 91–103, 2019.

GOLDENBERG, M. **A arte de pesquisar: como fazer pesquisa qualitativa em Ciências Sociais.** 5ª ed. Rio de Janeiro: Record, 2005.

JENKINS, H. Convergence Culture. **Click Nothing**, p. 308, 2006.

JENKINS, H. et al. **Confronting the Challenges of Participatory Culture**. Massachusetts: MIT Press, 2009. v. 21

KELLNER, D.; SHARE, J. A Mídia-Educação Crítica e a Democracia Radical. In: APPLE, M. W.; AU, W.; GANDIN, L. A. (Eds.). . **Educação Crítica: Análise Internacional**. São Paulo: Artmed, 2011. p. 315–330.

MARTIN, A. Digital Literacy and the "Digital Society". In: **Digital Literacies—Concepts, Policies and Practices**. New York: Peter Lang Publishing, Inc., 2008. p. 151–176.

PAPERT, S. **A máquina das crianças**. Porto Alegre: Editora Artes Médicas Sul, 1994.

RANTALA, L.; SUORANTA, J. Digital Literacy Policies in the EU— Inclusive Partnership as the Final Stage of Governmentality? In: **Digital Literacies—Concepts, Policies and Practices**. New York: Peter Lang Publishing, Inc., 2008. p. 91–117.

SILVA, E. M.; RAMOS, F. M.; BATISTA, J. C. Desafios no desenvolvimento de competências

INTERFACES DA EDUCAÇÃO

comunicacionais nos cursos de licenciatura das universidades do Nordeste brasileiro. **Ciência da Informação**, v. 45, n. 2, 2016.