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DIGITAL INFORMATION AND COMMUNICATION TECHNOLOGIES AND THE LITERACY OF DIGITAL NATIVES

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ABSTRACT

The present work analyzes the possibilities of pedagogical use of DICT to develop the literacy curriculum, from the perspective of teachers from the municipal public school system of Palmas, Tocantins, aiming to explain their training needs. DICT, which is increasingly present in everyday school life, requires teacher qualification to innovate teaching and learning processes. 39 literacy teachers and the management team of 3 (three) schools in the municipal education network of Palmas, which have approximately 60 teachers, were heard. All were invited to participate, with voluntary adherence. A qualitative approach was adopted, with data collection from an online questionnaire and document analysis. The results showed the need for improvements in the quantity and quality of technological equipment in schools and evidenced the urgency of continuing teacher training/training in the context of DICT, for its educational use. As a contribution of the present research, a plan for continuing education of teachers was outlined, which can be better detailed and developed by the participants themselves, if they wish to implement it.

Keywords: Literacy. Continuing Teacher Training. DICT.

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INTRODUCTION

Currently, Digital Culture emerges from various social practices and generates a great expectation that Digital Information and Communication Technologies (DICT) will bring quick solutions to innovate education, however, what adds greater weight to educators is the need for pedagogical use of these technologies to communicate, collaborate and produce knowledge.

When talking about DICT, in this work, it will be understood as a set of equipment and technological applications that normally use the internet and are differentiated from other technologies by the presence of digital. Costa, Duqueviz and Pedroza (2015, p. 3) state that "DICT are instruments situated in the history and culture of society, at least in societies that introduced, appropriated and organized themselves around digital technologies to carry out their productive activities". DICT changed the way of life of citizens, in such a way that they were daily led to live with such changes even without having the necessary knowledge and skills to deal with technological evolutions. Information and communications today have become instantaneous through DICT. The applications provide access to services such as online shopping, bank transactions in a very fast and practical way.

Transposing it to the educational field, more specifically to teaching knowledge, it is perceived that contemporary professional educators still require a lot of training to internalize what technological possibilities offer for the accomplishment of multiple tasks in the educational sphere. It is in this context that the research problem emerges, which can be summarized in the following question:

From the perspective of literacy teachers, how are digital technologies becoming integrated into the School Literacy Curriculum and how do they perceive their training needs?

The investigation is justified, because it is understood that DICT have an important contribution to the construction of reading and understanding of the world and that this construction occurs, mainly, at the beginning of schooling. It is notorious that its development has caused significant changes in educational practices. They have been increasingly present in the daily school life and teachers need to be qualified to deal with these tools, which can innovate in the teaching and learning processes. Hence the relevance of a study based on the understanding of teachers working in public education networks.

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The general objective of this research was to analyze the possibilities of pedagogical use of DICT in the literacy curriculum, from the perspective of teachers in the municipal public school system of Palmas, Tocantins, aiming to correlate them with the project of training literacy teachers. To achieve the proposed objective, the approach and procedures described below were adopted.

RESEARCH APPROACH AND PROCEDURES

Because these are subjective questions and answers based on the statements and perspective of its participants, the qualitative approach was adopted, which is the generic term to designate different researches in the Human and Social Sciences. According to Chizzotti (2006, p. 28) it refers to "research that, using or not quantifying, intends to interpret the meaning of the event based on the meaning that people attribute to what they say and do". It is a study method that values the description and explanation of the phenomena investigated, based on interviews and observations, and by definition, it is descriptive, therefore, the data are not reduced to variables, but generate themes that are observed and explored as a whole (Chizzotti, 2006; Denzin; Lincoln, 2000). Also according to the authors, qualitative research is based on broad questions that are refined throughout the data collection process and is not based on intuition, but on theoretical assumptions with a systematic collection process directed to the investigated theme, in which the analysis and construction of knowledge occur in the interaction of the researcher with the research environment and with the object studied.

Data collection was carried out through an *online* questionnaire, using *google forms*, containing closed and open questions about the profile of the professional, the different forms of use of DICT, aiming to identify, from the perspective of literacy teachers, which form best explains the use that each one makes of technologies and their training needs. Documents were also analyzed, such as projects, reports and others, referring to training that took place in the network or outside it, related to the use of DICT.

The qualitative analysis was carried out by validating the answers of the teachers, taken from the questionnaires, from the confrontation with the results of correlated researches is a way to ensure the reliability of the results found escaping the idea of single truth. Through this confrontation it is possible to show the diversity of meanings expressed by the interlocutors, through the confrontation with other points of view (Minayo, 2010; 2012). In this way, "the treatment of the material leads us to theorize about the data, producing the

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confrontation between the previous theoretical approach and what the field investigation brings as a singular contribution" (Minayo, 2001, p. 26).

Thirty-nine (39) teachers participated in the research, who work with the initial years of Elementary School, that is, from the 1st to the 5th grade, where the entire literacy cycle is completed. It is worth remembering that the literacy cycle, proposed by the National Common Curriculum Base (BNCC), takes place in the first two years (1st and 2nd years) of elementary school.

To safeguard the identity of the teachers and schools participating in the research, they are identified as School A, B and C, while the teachers are identified as P1, P2, P3 and, so on, up to P39.

PROFILE OF THE PARTICIPANTS

Identifying the profile of the participants in the research was considered important to situate them in relation to the expansion of digital technologies and better understand their relationships with them. The data showed that 56% have training in the area at the undergraduate level and that approximately 25% are aged 36 years or less. This means that the others, that is, the majority, were born before the expansion of digital technologies.

Chart 1 below summarizes the characteristics of the participants in relation to training, age group and digital competence.

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Chart 1 - Profile of the participants

Participants	TR	YOU	CHSR	CHSO	HSP	HSF
P1	7 years and older	7 years and older	40h/y		6 to 7 am	2 to 3 hours
P2	7 years and older	7 years and older	40h/y		6 to 7 am	2 to 3 hours
P3	7 years and older	7 years and older	40h/y		6 to 7 am	6 hours or more
P4	7 years and older	7 years and older	40h/y		6 to 7 am	6 hours or more
P5	7 years and older	7 years and older	40h/y		6 to 7 am	6 hours or more
P6	7 years and older	7 years and older	40h/a		4 to 5 hours	6 hours or more
P7	7 years and older	7 years and older	40h/a	20h/y	4 to 5 hours	4 to 5 hours
P8	4 to 6 years	4 to 6 years	40h/y	20h/y	4 to 5 hours	4 to 5 hours
P9	7 years and older	7 years and older	40h/y		4 to 5 hours	6 hours or more
P10	4 to 6 years	7 years and older	40h/y		4 to 5 hours	6 hours or more
P11	7 years and older	7 years and older	40h/y		4 to 5 hours	4 to 5 hours
P12	7 years and older	7 years and older	40h/y		4 to 5 hours	4 to 5 hours
P13	4 to 6 years	7 years and older	40h/y	20h/y	6 to 7 am	6 hours or more
P14	4 to 6 years	7 years and older	40h/y		4 to 5 hours	6 hours or more
P15	4 to 6 years	7 years and older	40h/y		6 to 7 am	6 hours or more
P16	4 to 6 years	4 to 6 years	40h/y		8 am or more	6 hours or more
P17	7 years and older	7 years and older	40h/y		4 to 5 hours	6 hours or more
P18	4 to 6 years	7 years and older	40h/y		8 am or more	6 hours or more
P19	1 to 3 years	7 years and older	40h/y	20h/y	4 to 5 hours	2 to 3 hours
P20	7 years and older	7 years and older	40h/y		8 am or more	6 hours or more
P21	7 years and older	7 years and older	40h/y		6 to 7 am	2 to 3 hours
P22	7 years and older	7 years and older	40h/y		8 am or more	6 hours or more
P23	7 years and older	7 years and older	40h/y		8 am or more	6 hours or more
P24	7 years and older	7 years and older	40h/y		6 to 7 am	4 to 5 hours
P25	4 to 6 years	7 years and older	40h/y		6 to 7 am	6 hours or more
P26	7 years and older	7 years and older	40h/y		6 to 7 am	6 hours or more
P27	4 to 6 years	7 years and older	40h/y		8 am or more	6 hours or more
P28	7 years and	7 years and	40h/y		6 to 7 am	4 to 5 hours

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	older	older				
P29	4 to 6 years	4 to 6 years	40h/y		4 to 5 hours	2 to 3 hours
Vacuum cleaner	Less than 1 year	Less than 1 year	40h/y		8 am or more	2 to 3 hours
P31	Less than 1 year	7 years and older	40h/y		2 to 3 hours	2 to 3 hours
P32	7 years and older	7 years and older	40h/y		6 to 7 am	6 hours or more

Source: prepared by the authors
Legend: TR: Working time in the municipal network of Palmas
TE: Time working in education (including other networks)
CHSR: Weekly workload in the municipal network of Palmas
CHSO: Weekly workload, in another education network
HSP: Weekly hours available for planning
HSF: Weekly hours available for study/research/investment in training

The data reveal that approximately 60% of the participants have more than 7 years of teaching in the municipal education network of Palmas. It is a significant period for the teacher to acquire experiences in pedagogical practice. However, this does not mean that the teacher's mastery of technological resources is compatible with the requirements demanded by DICT, which are constantly evolving.

They also show that 64% of the participants have six or more hours per week for planning, as well as to dedicate themselves to studies/training and/or training. Therefore, given the availability of time, it is up to the teacher to invest in studies that bring him the necessary knowledge to master technological resources and be able to integrate them into his pedagogical practice, thus ludicizing children's literacy.

Imbernón (2022, p.23) when addressing teacher training that is made "for change and uncertainty" argues that it should happen as a process of "collective protagonism". For the author, the teacher "should not be a technician who develops or implements prescribed innovations, but should become a professional who has had to participate actively and critically in the true process of innovation and change, from and in his own context".

DIGITAL COMPETENCE AND TEACHER TRAINING NEEDS

Regarding the digital competence of the participants, the data show that most are digital immigrants, that is, they were born before or during the expansion of digital technologies and learned to deal with them during their initial training or do so in their daily lives, usually for their own use and a little less as a resource in the classroom. Therefore, it is in this context that the teacher needs to be trained, in a "dynamic and flexible process" (Imbernón, 2022, p.23).

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These data also point to the insufficiency of technological resources in schools. Approximately 30% of the participants reported that there is little availability of technological resources in their units. As a result, it becomes almost impossible for the literacy teacher to plan and develop classes, with the use of DICT, in the classroom. Remembering that the literacy process takes place mainly through playfulness, in today's society, DICT are essential tools to provide more dynamic, playful and contextualized classes for this audience.

When doing the documentary analysis, no official records were found about the participation of the municipality of Palmas in government programs aimed at digital technologies in the educational context. The study by Jesus (2015) pointed out difficulties encountered in articulating a training project, which took place in 2013 and 2014, for the use of portable computers in the municipal network of Palmas: lack of physical and furniture structure, *wifi* and the non-completion of the school renovation, were factors that made it difficult to carry out the training.

Nor was there evidence of changes in the educational practices of the teachers who participated in this training, which allows us to infer that, if they happened, they were punctual and were lost in time, in the school's routine, especially due to the discontinuity of the project and the lack of maintenance and replacement of equipment damaged by use.

It should be noted that, as an initiative of the municipality itself or from its adherence to state or federal public policies, it will be relevant to implement programs or projects for the provision of infrastructure in DICT, for the qualification of professionals aiming at the educational use of these technologies, in addition to the production of content, for use in literacy classrooms.

Regarding the need for teachers to be in constant training, Prensky (2001, p. 6) argues that "if Digital Immigrant educators really want to reach Digital Natives, that is, all their students, they will have to change", they will have to be continuously trained.

Also on this issue, Melo, Nunes, and Trindade (2021, p. 48) evaluated the digital competencies of professors at a Federal Institution in Tocantins and found that "professors have a moderate level of digital proficiency and demonstrate greater fragility in the dimensions Pedagogical Competencies of Teachers and Competencies of Students".

Borges (2022) also developed research in the state of Tocantins and investigated the use of digital games in the teaching of History and highlighted the relevance of a greater mastery of the media by teachers.

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> Associating traditional teaching practices with new learning methodologies using digital games is a major challenge for some teachers, as it requires prior knowledge, a lot of planning and mastery of the media for this proposal to be successfully developed, taking into account that many students, also called digital natives, they find it easier to process a large number of information at the same time, but they depend on supervision to use these skills for their own intellectual development (Borges, 2022, p. 17)

Even if students appropriate various technological resources for entertainment, it depends on the teacher to guide them to pedagogical use. Borges (2022, p. 17), also highlights that "although there are many technological and media resources to collaborate with pedagogical teaching-learning activities", both the difficulties related to the need for preparation, training, and detailed planning on the part of the teacher exist those posed by the socioeconomic reality of the students of the numerous educational institutions. The survey of the Continuous National Household Sample Survey (PNAD) carried out by the Brazilian Institute of Geography and Statistics (IBGE, 2021), revealed a decline in the acquisition of equipment by families in the last quarter of 2019.

These studies show that change is a relatively long process, not easy at all and it seems to be very laborious to break with ingrained methods, used for years on end, therefore, change requires continuing education, reflection and teaching action (Gonçalves, 2017).

The demands for change in education combined with the demands of access for all to this digital world, emerge as a right, however, universalizing this right depends on political and technical issues. The school as a whole, in addition to the teachers, needs conditions to appropriate the digital culture. It is necessary to articulate with the society that is constituted, among other components, by the presence of DICT. Such technologies can modify and be modified by the school curriculum, and become allies of the teacher, to enhance the literacy of their students, in a playful, natural and pleasurable way.

CURRICULUM FOR LITERACY AND DICT

The National Common Base (BNCC) considers digital culture a general competence that must be developed by students (Brasil, 2018). It must permeate the entire school curriculum and promote multiliteracies, therefore, digital culture in the curriculum needs to contribute to the more concrete participation of students with current language practices.

The BNCC proposes literacy that considers play, make-believe, traditional and current children's cultures, especially those that refer to the field of listening, speaking, thinking and imagination. That the teacher expands the repertoire, complexifies the

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knowledge brought by the children to school, through playfulness, listening, awakening creativity, criticality and curiosity in finding answers to their doubts.

In the curriculum of School A, along with the Language and Mathematics activities, there is the discipline of Technologies, which is worked on from the first year of literacy. According to the pedagogical proposal, the main objective of this course is to enable the student to be able to use DICT in the most appropriate way to carry out their actions as a student and as a citizen. The intention is that this objective is achieved through practical classes as the student handles the computer and takes possession of the specific language.

The proposal is that the teacher of this discipline is qualified, with a higher education degree and has basic knowledge of DICT. It must act as a stimulator of intelligences and promoter of ideas, which help discoveries.

The Pedagogical Political Project (PPP), of Schools B and C, does not even mention how and when DICT can be used.

Based on the data from the research and *on-site visits,* it is perceived that the scrapping of the Computer Laboratory (LABIN) in School A and its non-existence in Schools B and C, makes it impossible to work more effectively with practical classes with DICT. Such difficulties are the ones that arise and need to be untied by the teacher, but mainly by the management of the school unit together with Semed. These data justify several negative responses from teachers, when asked about the use of digital resources in their pedagogical practice.

Considering that today's children are digital natives, with regard to the different literate practices, it is necessary to include those that are produced with the use of DICT. As the child is born having contact with them, it is expected that they contribute to literacy in the first two years of Elementary School (from 6 to 7 years of age). Age at which the child should:

> understand, use and create digital information and communication technologies in a critical, meaningful, reflective and ethical way in the various social practices (including school ones) to communicate, access and disseminate information, produce knowledge, solve problems and exercise protagonism and authorship in personal and collective life. (Brazil, 2018, p. 9).

There are many skills involved in this general competence, established in the BNCC and all of them very opportune for the development of literacy practices. Remembering Almeida and Valente (2012), it should be noted that DICT does not guarantee learning, but can contribute to valuing and developing it, as long as the teacher acts as a mediator or

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learning agent. This teacher, even with less handling skills, must have security for the pedagogical use of digital resources. He is the one who knows the goal he wants to achieve and how the tool, in question, can help the student to achieve it.

In other words, it is not about the use of DICT, it is not a fad or a mere pastime. DICT should be used to do what would not be done without them. Thus, they will modify the curriculum, which will also be modified by them, as argued by Almeida, Alves and Lemos (2014) when describing the conception of *web* curriculum. And a *web* curriculum for literacy requires investments, both in equipment and in the training of human resources.

In this context, it is essential to invest in public policies aimed at equipping schools and investing in the training of educators, as well as supporting them for a use that really contributes to literacy and the acquisition of basic knowledge by students at this school stage.

WAYS TO USE TICS IN EDUCATION

There are several technological resources that can be used in education, in order to contribute to learning, in addition to making the classroom a contemporary space of the knowledge society and digital culture. Chart 2 below presents the participants' answers about this use in their classroom practices

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Chart 2 – Use of technological resources by the participants

Resources	Sim, utilizo.	I have not used/intend to use.	I don't use / I don't master / I don't know	I don't use it/ I don't think it's necessary
Open Educational Resources (OER)	14	15	10	-
Gamified educational practices (*online or offline digital games*)	10	22	4	3
Audio and video features or other mobile phone applications / *smartfones* (APP)	30	7	2	-
Tools for collaborative writing of texts, e.g., *Webnote, Googleforms,* among others.	17	16	6	-
Social Networks for communication and sharing of productions.	22	10	3	4
Educational Robotics Resources	-	19	18	2
Free software to develop computational thinking (programming), such as *Scratch.*	1	17	20	1
Commercial software such as text editor, image editor, spreadsheet editor, and presentation editor	20	13	6	-

Source: prepared by the authors

The reading of Chart 2 shows, among other things, the resources most used by the teachers participating in the research. In first place is the audio and video feature or other applications of cell phones/smartphones (APP). These resources allow the teacher to dynamize his class from educational videos contextualized to the syllabus of literacy. They also allow working on digital literacy, as students can film, take photos and make recordings of the most diverse activities carried out.

It is also possible, as long as it is planned and accompanied by the school and families, to interact with other colleagues from the school itself or even from other schools through messages, audio, publication of productions made in groups created for this purpose or even on social networks. A class can gain a lot from the presentation of short videos or photos taken by the students themselves. Cell phones and smartphones can be used to create communication environments with the aim of forming learning communities, publishing texts,

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videos, photos and opinions. Sampaio (2012) states that knowledge is thus built in a dynamic and interactive way among the participants in the process.

In second place appears the use of Social Networks for communication and sharing of productions. These are more suitable for adolescents and young people, who are connected daily. However, in literacy, these are resources that the teacher can eventually direct activities, so that students, together with their families, can research, produce and share between colleagues and teacher, thus providing the integration of the family/teacher/student triad. They can also be used, sparingly, for communication with families.

In third place are commercial *software* such as text editors, image editors, spreadsheets and presentation editors. Text editors, in literacy, provide the student with learning through play. It allows the child to go further, produce more and better, being able to review and correct their productions, with more agility.

When dealing with the keyboard, there is no concern about whether the child is right-handed or left-handed, whether he has to write cursive or stick. The focus will be on the content of the writing, and the form he can choose the letter and color that catches his attention. Learning to read, write and DICT should be a simultaneous and complementary process.

Image editors, on the other hand, refer the child to the world of imagination. The teacher, when reading a story to his students, can request the retelling of this story, through illustrations in the image editor, so that the child has a range of possibilities to interpret, create and recreate, in addition to exercising motor coordination well, as this is well explored in the image editor.

These are simple examples of the use of *commercial software*, but there are other much more elaborate options that need to be discovered and tested by teachers, within the context where they work. But Garcia (2019) considers that it is not so simple, and argues that employing DICT in learning processes can be the biggest challenge for the contemporary teacher.

Richiteli (2017) also states that associating DICT in pedagogical practice is not a simple undertaking. He also points out that, when it comes to the reality of public school teachers, the insertion is less favorable.

Therefore, in order for DICT to be used, schools need to be equipped with computers connected to the network. Based on this adaptation, it becomes important and

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complementary for the teacher to appropriate the best resources to innovate and change his practice in the classroom, providing the child in the process of literacy with the ability to read and write, from the perspective of multiliteracies.

More than 50% of the participating teachers are unaware of *free software* to develop computational thinking (programming), such as *scratch,* and 46% have never used the resources of educational robotics, because they do not know or do not master these resources.

These data are corroborated by other research such as that of Albernaz (2022), for whom, despite the commercial expansion of digital games, their use in education is still timid and little used by educators in their classes. Moraes, Rossetto and Santos (2022) also conducted research on the playful use of DICT with 21 (twenty-one) teachers from the early years of 4 (four) municipal schools. The results indicate that the participants demonstrate that they understand the importance of this use, however they reveal that it occurs in an isolated way and not linked to the school curriculum.

On this issue, Gonçalves (2017, p. 108) points out that "teachers have to know various types of *hardware*, as well as *software* and the ways to integrate them into the school curriculum", because without knowing the resources it becomes impossible to use them in their daily practice in the classroom.

Still with reference to the participants' experience with DICT in education, they were presented with a list of methodological possibilities to be developed with the use of DICT, among them, the production of digital narratives, various activities for the development of computational thinking, collaborative writing (mediated by DICT) and possibilities for video production, of audios or images. Possibilities for teaching and learning projects using open educational resources, robotics or free software were also presented . Consistent with the answers about the most used resources, the most used methodological proposal was also the production of videos and audios.

It should be noted that, guided by the teacher, students can record audios and videos about the development of their own activities in the classroom and, from this interaction, develop the literacy process. Even so, more than 50% of the participants answered that they have not yet used them, but intend to use them in their pedagogical practice.

As for digital narratives, it should be noted that producing narrative is something spontaneous in children and they easily create a plot. From the games carried out, they establish their tales and create their spaces. A child's imagination is his space of autonomy

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and fantasy is his daily companions. It is through them that the child experiences the new and fantasy is a moment of imagination and relaxation.

And, nowadays, the interest in digital narratives is also aroused very early in children. Today it is very common to see young children watching videos and reproducing what they see there. There are children who produce videos and who have *a YouTube channel.* It is up to the teacher to use this potential of the children to work pedagogically, providing learning, from the production of stories, narrated individually or collectively, which can be recorded and shared with colleagues in other classes, for example.

The same applies to the collaborative writing of hypertexts or other collaborative works, mediated by DICT. Initially, the production must be done orally. For example, the teacher chooses the keywords that should appear in the story and exposes them in the classroom. One student begins the story, passes it on to another, who tells one more passage and moves on to the next, and so on. The teacher mediates the construction of the class, intervening whenever necessary. Once the class has mastered the oral production, they can be challenged to do so using digital resources. To facilitate learning, this can be an activity developed in pairs. Finally, the creativity of literacy teachers, who know their students and the level of development of each one, will be fundamental for them to enrich their planning with collective intelligence practices.

What about the development of teaching and learning projects? These allow the use of different resources, depending on the objectives of the project in question.

It is also worth highlighting the open educational resources (OER), as there are specific websites that provide digital images, videos, books, music, video clips, among other resources, with educational intent. For example, the Digital School Portal, where several resources are made available, entirely free of charge. An open educational resource, applicable to literacy, identified in a quick navigation on the portal is the Fishing Letters Game. Keeping in mind the skills of the BNCC (2018), this game provides the child, in the process of literacy: recognizing that texts are read and written from left to right and from top to bottom of the page; read new words accurately in decoding, in the case of frequently used words, read globally, by memorization; search, select and read, with the teacher's mediation (shared reading), texts that circulate in printed or digital media, according to the needs and interests of the student.

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To plan, it requires teaching work time, in addition to classroom activities, so OER can help, since they have already been designed to meet certain curricular topics, and the teacher only needs to locate and download them, if the internet connection is not sufficient for *online use*.

Some participants highlighted the importance of using technological resources in class to make them more dynamic and more attractive to students.

> I think it is extremely important to use technological resources to carry out classes. They provide differentiated and interesting classes. (P1).
>
> It is necessary [the use of DICT] to develop and arouse the student's interest in the content taught. (P11).
>
> The use of technological resources is of great value, to help and streamline classes and thus make them much more attractive to our students. Of course, using it in a coherent way so that this becomes a tool in favor of the student's learning and being careful not to let him depend only on technologies (P13).
>
> Using the technological resources available at the school, such as: TV, data show, videos, online and offline games, internet research, text production and other options that technologies provide to make a class more dynamic so that it becomes more attractive to students (P17).
>
> The use of technologies is fundamental in this virtual world we live in and their use in the classroom contributes a lot to good learning (P18).
>
> The use of resources is certainly of great value for the students' learning (P19).
>
> [With DICT] More creative and diversified classes (P21).
>
> It is one more resource to assist in the teaching-learning process (P27).
>
> Use to hold students' attention. Work on the difficulties of each student. Bring the discipline closer to the format in which the student is really interested, with this the student develops better (P31).
>
> Important. There are several contents that can be worked through the internet, such as the creation of the universe, of the planets that make up the solar system; sung multiplication tables; word search; senses and multiplication table scavenger hunts (P36).

Despite the proven relevance to the dynamism of classes, DICT can and should do more than that. The research of authors such as Almeida and Valente (2012), among others, shows that they can contribute to research, debate, discussion, dialogue, registration and sharing of documents, the elaboration of works, the construction of personal and collective reflection, in short, to the construction of knowledge, which would not be easily accessed without them.

Teaching the child to read and write, with or without the use of DICT, requires understanding the literacy process. This has been re-signified with the origin of the concept

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of literacy, which is a broader and more comprehensive form of literacy. Signs, televisions, computers, movies, advertisements, instructional texts of toys, digital texts, among others, are social instruments of communication, which contribute to the child's literacy and consequently to the construction of knowledge.

Almeida and Valente (2012) propose that DICT be used to make the school a cheerful and fun environment, which favors the systematized constitution of knowledge, based on collaboration, cooperation and distraction. And the teacher of children in the process of literacy is responsible for organizing a literacy and joyful environment, so that learning tools are established. The main obstacles presented by the participants to the use of DICT are the unavailability or precariousness of the available resources. An improvement in the structure of schools, with regard to the technological resources available to teachers, is fundamental for the development of digital skills for both teachers and students.

> Digital resources in schools, or rather, the classroom in the Municipal Education network are still very precarious. At least in what I work, there is a lack of support from digital resources so that we can work in order to achieve student learning, focused on the digital world (P5).
>
> There is no direct use of technological resources, due to not having the means available, but I use it in my planning (P6).
>
> I use them little, due to their availability by the teaching unit (P12).
>
> (in) Availability of resources (P15).
>
> The reality of each school must be considered. In the place where I work, there are few resources available for us to work with technological resources, so I work the basics (P20).
> The technologies available are few, but when we use them, it improves performance and interest (P22).
>
> We have few technological resources, but when we use them, there is certainly more interest on the part of the students (P23).
>
> I use them little, because we have few resources (P24).
>
> I consider it more or less. As a result of the limits exposed by the system and due to the lack of resources offered by the educational network (P25).
>
> Medium, due to the low supply of technological resources for the demand of the school unit (P26).
>
> Medium. I like to innovate classes with technological and digital resources, however the resources available at the school I work still do not allow me to innovate much, the demand is greater than the supply (P33).

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Despite the government's programs to encourage the insertion of digital and media technologies in the educational process, the reality demonstrated by the research participants is that the lack of these is one of the obstacles to their insertion in pedagogical practices.

In view of this reality, it is worth reflecting: why are schools still not prepared with enough physical spaces and resources to meet the demand of teachers and students. Where is the knot? It is worth reassessing how public educational policies aimed at DICT are actually being implemented in schools.

Based on the participants' answers, it is also considered that the effective use of DICT in education is a necessity, given the current trends. The teacher needs to discover methods and ways to use them in the classroom, to effectively improve the interest and consequently the learning of students, in the process of literacy, as well as in the other school years.

Continuing education is one of the ways for the teacher to take this step towards understanding the most current trends in this field. After all, teaching requires learning, learning to adapt to the demands of society. Demands of a generation Z, which is being born and raised in the midst of digital technologies. About the nomenclature, Kämpf (2011), explains that the Z comes from *zap*, from the English that means to do something very quickly, it also means energy, enthusiasm. Children have this energy to "zap", but they usually don't do it with the intention of learning.

Therefore, in order for DICT to contribute to the practice in order to really provide learning to this student who appropriates them with great ease and agility, it is necessary for the teacher to be involved with them, that is, he needs to appropriate knowledge and skills that act as a mediator and guide of educational processes that allow students to learn more and better with the insertion of DICT in their educational practices.

Regarding the different forms of use of DICT, the participants answered:

> P2 – In the classroom I don't use it much, but I prepare my classes with the technological resource. I think it's very productive and much more practical.
>
> P8 – It needs to adapt to modernity.
>
> P9 – I still don't use much technological resources in the classroom.
>
> P 39 – [...] I have used few technologies, but it is something fascinating that draws the student's attention to learning.

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It should be noted that there is an obstacle due to the insufficiency of equipment in schools, in addition to the lack of knowledge, by the participants, of the forms of pedagogical use of the available technological resources.

Silva, Silva Prates and Ribeiro (2016), share the idea that the teacher's mediation in the teaching and learning process should be motivating to provide the construction of knowledge in a meaningful way for the student, so their training is essential. The data also show the recognition of teachers about their need for training for the pedagogical use of DICT.

> At the moment I do not use these materials, but I would have no problem learning and using them in the classroom (P16).
>
> [...] little mastery and the low availability of technological resources in my workplace, the use of resources is still low (P29).
>
> [...] my mastery is still little with technological resources (P30).
>
> I consider myself digitally illiterate. I only master a little of the immensity of the digital world (P32).
>
> [...] I need to learn more to deal with technologies. I have very little control in this area (P34).
>
> Working with technologies is still a taboo to be overcome. I strive to innovate my classes because I believe that classes become more interesting for students (P35).
>
> Learner of the use of technologies in the educational field. I believe that these technological resources provide more interest for our students to participate in classes (P37).

In fact, knowledge of the potential of each technological resource can bring substantial advances, as corroborated, among others, by the research of Almeida and Prado (2005) and Gonçalves (2017). The process of teacher awareness is fundamental for a transformation of practice that goes beyond the domain of technologies and brings an underlying vision of the world, of man, of science and of education.

The awakening of the teacher to the use of DICT in the classroom is necessary nowadays, because students are already born in the midst of DICT and begin to handle them in childhood. They are digital citizens, they were born with them and they follow their expansion. In other words, children do not even imagine the world without such technologies (Santos *et al*., 2011), therefore, in the context of knowledge-intensive societies, the crystallization of teaching practices guided by logics of the past seems detached from the challenges of the present and the future (Sordi, 2019).

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Venturini and Medeiros (2016) also argue that, in contemporary society, DICT emerge and are inserted in schools and consequently in the teacher's practice, requiring changes in customs and work methods. The teacher is sent to the search for knowledge of the new and to rethink his pedagogical practice, outlining new directions.

For Santos and Di Renzo (2016), the educational inclusion of DICT requires going beyond setting up a LABIN in educational units [...] and digital insertion needs to go beyond an internet search. Therefore, it is necessary for the teacher to overcome barriers and explore the diversity of possibilities that DICT offers to dynamize teaching.

The survey data, on the digital competence of the participants, the technological resources known and used, as well as on the methodologies developed by them, show a higher rate, digital immigrants, that is, teachers who were born before the technological expansion, therefore, need to continuously learn from the DICT.

This reality makes us realize that, along with the equalization of schools, teacher training is something necessary to overcome one of the knots, in this process of insertion of DICT in pedagogical practice with children in the process of literacy.

TEACHER TRAINING PRACTICES AND TDIC

The data point to the lack of knowledge or mastery of DICT, as well as the lack of technological resources available for the teacher to use in their classes. They also show a desire for continuing education in the use of DICT.

It is evident that teacher training does not solve the whole issue and the need for actions by the Municipal Management (public policies) prevails, for the acquisition of technological resources for schools, combined with continuing education for teachers.

In this sense, the participants were asked if they were given the opportunity to take an improvement course, for the educational use of DICT, which course *design* they would choose – from a list of 6 (six) different configurations and a seventh option for those who do not feel the need to take the course, but are willing to help colleagues who need tutoring.

The course settings were as follows:

1. A training course in the face-to-face modality, of short duration, offered within the workload.
2. A training course in the face-to-face modality, of short duration, offered within the workload, plus practical activities to be developed with its students.

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3. A training course in the blended modality, of medium duration, with face-to-face modules, offered within the workload complemented by modules of activities mediated by TDIC.
4. A Training course, in the blended (hybrid) modality, with face-to-face modules, practical activities to be developed with its students, as well as modules of activities mediated by TDIC.
5. A Specialization course, in the blended (hybrid) modality, with face-to-face modules, practical activities to be developed with your students, as well as modules mediated by TDIC, for productions, according to the disciplines taught.
6. A Specialization course, in the blended modality face-to-face modules, practical activities to be developed with your students, as well as modules mediated by TDIC, for productions, according to the subjects taught, with the option of acting as a monitor or tutor to assist colleagues.
7. He would not like to take a Training or Specialization course, but he is willing to act as a monitor or tutor to help colleagues.

The answers showed a technical tie between two formation designs. The first, which reached 30% of the respondents, was an in-service training, with practical activities to be developed with their students.

The second most chosen by 28% refers to a specialization course, in the hybrid modality, with face-to-face modules, practical activities to be explained with their students, as well as modules mediated by TDIC, for productions, according to the disciplines taught.

It should be noted that the participants were clarified that the training is a modality of shorter duration, and can be offered within their own workload, which contributes to greater participation and involvement of teachers. Tardif and Lessard (2017) highlight the importance of continuing education linked to the context of teachers' work, in the school space itself, as it considers the teacher as a producer of knowledge.

On the other hand, training through specialization courses was also made explicit, as a way for teachers to improve their knowledge and their advantages for continuing education. Specialization requires a greater workload, but even those who opted for this modality, chose the one that had the possibility of "practical activities to be developed with their students". Only one participant expressed that he would not like to take a Training or Specialization course for DICT and was willing to act as a tutor, helping colleagues.

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Martinse Giraffa (2008, p. 4) corroborate these findings on the relevance of teacher training for the construction or resignification of their competences. For the author, such training becomes "one of the main anchors in the success stories of the use of technological resources in school".

For Imbernón (2022), the important thing in training is that it is developed with teachers and not for them or about them. It is essential to create opportunities for the teacher to analyze the past (how I teach literacy without the use of DICT) and look ahead to create alternatives for transformation (how DICT can contribute to improving the literacy process). That is, from the moment of conception, through the development and evaluation of training, it is necessary to have a focus on the reality of the group in formation, collaboratively seeking reflection and the tracing of new paths.

In this same perspective, Nóvoa (2009, 2019) draws attention to the challenge in teacher training, which is to idealize the school as an educational space. Therefore, it is not enough to carry out specific courses, but rather a permanent process must be implemented, integrated with the daily life of the teacher and the school. Another aspect of extreme relevance is the exchange of experiences that should occur between teachers in training and between them and higher education institutions, for the creation of a new culture of teacher training.

Silva and Alves (2017) **corroborate the aforementioned idea by highlighting the relevance of the** specificity of the school locus for the learning of specific didactics for the use of DICT in the teaching environment. Once again, there is an urgent need to equip schools with DICT resources, as it would be useless for teachers to participate in training, for example, in an equipped laboratory at a University and not be able to transpose knowledge into daily school life. Therefore, it is worth repeating to reinforce the need for the school to be prepared, with equipment in conditions of use, so that the use of DICT can be a reality in pedagogical practices.

The reality, found in the present research, confirms the context described by Almeida, Alves and Lemos (2014) for whom, there are multiple reasons for the school not being able to insert technologies into the curriculum. In their research developed in various regions of the country, the authors mainly identified the lack of infrastructure and the insufficiency of pedagogical training for this use.

The authors also warn that the true insertion of DICT happens outside the classroom, that is, when teachers prepare themselves more rigorously for the development

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of their own digital skills, to be able to teach with them, that is, such digital skills of teachers are fundamental for their performance in the contemporary school.

FINAL CONSIDERATIONS

To conclude this study, it is important to return to the guiding question of the research, which was: from the perspective of literacy teachers, how are digital technologies being integrated into the School Curriculum of the early years, that is, into the literacy curriculum and how do they perceive their training needs, to carry out this integration?

In view of the probable answers pointed out by the research, it is considered that the marked presence of DICT has caused changes in people's habits, enabling new forms of interaction between subjects. This reality in the field of education brings challenges to the teacher, but opens up a range of possibilities for the integrated use of DICT in the teaching and learning process, based on the reality of each school. Thus, there is no longer the possibility of non-pedagogical use of the resources from DICT and the research participants seem to understand this reality.

However, some relevant considerations are in order:

Regarding the use of DICT to develop the Literacy curriculum, the results indicate that this is still a timid practice on the part of teachers. Taking into account that nowadays, there is a constant evolution of such resources, it would be important to expand their use, since they enable teachers to create, recreate, innovate and streamline their teaching practice.

Factors such as the scrapping of LABINS, very few resources available in the educational units listed in the researched, as well as the lack of knowledge and mastery of DICT, contribute to a very short insertion of these resources in the Literacy curriculum, considering that this is a totally digital native audience, that is, they are children who were born in contact with the digital world.

Regarding the scarcity of public educational policies for DICT, it is considered a negative factor. In order for there to be a real insertion of DICT in the curriculum, public educational policies need to be articulated, in order to contemplate machinery and equipment, infrastructure, electrical network, connectivity as well as initial and continuing education and/or training of teachers.

It is clear that the programs, until then focused on this context, suffer discontinuity with the changes in government. Such discontinuity compromises the whole process and it

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seems that it is always necessary to return to the starting point, for example, having to redo all training from the starting point. The scarcity of public policies has a negative impact on the educational use of DICT, which could and should happen in schools. It also has a direct impact on the domain, or lack of teaching mastery for the pedagogical use of DICT.

The verification of the lack of mastery of the educational resources provided by the DICT by the participants of the research in question, leads to reflection on the need for continuing education, which allows the teacher to integrate these tools into his pedagogical practice in order to provide the student with the construction of his knowledge in a more meaningful way.

Regarding teacher training practices for the educational use of DICT, the participants were receptive to that training carried out in service. It is believed that the continuous training or training carried out in the school unit, by the teachers, with the teachers and not for them, is the possible way to improve the quality of teaching with the educational use of DICT. In this context, the importance of observing the common needs and interests of the school community is emphasized, so that the training is coherent with the so-called reality.

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