# Significant use of technologies in digital education

https://doi.org/10.56238/sevened2024.013-002

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## ABSTRACT

The expression digital technological literacy has been increasingly used in the educational environment to characterize a learning prototype specifically of writing that involves signs, gestures and procedures necessary for the individual to be able to read and write on the computer, notebook and/or other digital devices. According to Educação (2022), the meaning of its noun in the Portuguese language is: "training or training of new generations according to the cultural ideals of each people". However, it is necessary that within education it is of the new generations as well as the oldest, when having contact with the internet, digital education both for parental guidance and for the physical experience of children in the world/family that they are inserted in at birth.

Are we able to think of literacy done with digital tools? Bringing it to the context of literacy and literacy, the various digital equipment bring new ways of thinking in relation to the production, communication, propagation and dissemination of the writings of those involved that are inserted in the context of digital education that is being presented at the time of transmission of this new knowledge.

This indispensability is so that we can bring to everyone the continuous loving orientation for interaction with respect, ethics and integrity also to the digital world, so that we will have posts, videos, stories, vlogs, blogs, etc. that take into account the kindness in treating as it is done "live and in color" and we have delicacy in conducting conversations to generate records and meaningful memories for the normal days as well as for the special ones without the face of the "naked truth" and raw" or "more sincere opinion" which in fact, often comes with: lack of tolerance, absence of empathy/respect and lapse of kindness when treating others.

In addition to the lack of patience and hate speech that occurs in abundance on the internet, it is necessary to include in those who circulate in this digital environment the awareness of the dangers that travel in it, that is, in this environment not everything is roses and just as we have traffic education about circulation on the streets, it is also necessary that the cognitive process for digital education is done in the various nuclei that the person is part of and brings with him in the their experience, such as in the family, at school, in the community, at university or at work.

Therefore, it is important to teach digital technologies in the literacy of children, adolescents and young people so that we have future adults who are digitally literate, not just users of electronic devices. The need

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for digital ethics must be imbued with them, in addition to the playful possibility that will be included in the literacy learning environment, in addition to the virtual and sensory experiences that technologies can bring. So the use of digital technologies in literacy brings with it the possibility of mixing: calculus, spelling, arts, environment, geography, history, technology, body and many others; each other so that the gain is in all fields: cognitive, socio-emotional, bodily and transcendental; so that knowledge and skills involve all the intelligences of the human being, not only those most required by society such as Portuguese and mathematics.

**Keywords:** Digital education, Technology, Technological literacy.

## INTRODUCTION

In view of digital literacy, it emerges as a proposal for the interweaving of the use of accessories of registers that are being used in written initiation and the presentation of reproduction systems, whether they are: - letters, graphic sketches, icon schemes, representation of the most varied colors, sounds, expressions in still and/or moving images. The simple gesture of speaking or writing by means of some technological devices brings a relevant meaning of the functioning on the writing of those involved.

However, in order for this exchange of knowledge to take place, it is necessary for the child to have contact with the most different techniques so that the intertwining between the machine and the new knowledge that is being proposed in the classroom or outside of it for children in the literacy and literacy phase emerges: learning to deal with the use of new technologies develops cognitive operations and this allows the memorization and internalization of technologies to A new knowledge that is presented to you and causes effects not only on the writings of cell phone screens or other devices, in sequence, sharpens the new knowledge about the more specific functioning of the new instrument used for writing. Thus, digital literacy is an important component of digital literacy since literacy, and both need to be inserted and taught in school since recent literacy is restless because of the digital environment and its new technological configuration that is allied to the school as a contribution to teaching today.

## DIGITAL TECHNOLOGICAL LITERACY

The use of technologies can help the school in the literacy process. Since it opens the doors to a range of activities that are available and the child evolves promoting improvement together with teaching from within the classroom. In addition, such literacy is not only linked to the school environment, it is essential for the elderly who also have difficulty in handling electronic devices in general and depend on grandchildren, children, siblings, that is, if they cannot manage their emotions of shame, fear, anxiety and in this way they will hardly be able to overcome the barrier of using the device.

These devices make it possible to mix: calculus, writing, arts, environment, geography, history, technology, touch and many others; each other for the teaching of a given subject, so that the gain is in all fields: cognitive, socio-emotional, bodily and transcendental; so that knowledge and skills involve all the intelligences of the human being, not only those most required for society such as Portuguese and mathematics.

It is certainly because the devices have many attractions, animations and propose dialogues and challenges for children and educators, as well as enabling a dynamic for the class. In addition, there is a huge library of materials that can be used in the literacy process in a playful way, both in

calculus or writing, arts, environment, geography, history, technology, body and many others. They enable multiple learning: cognitive, emotional and psychomotor; It also stimulates neuroplasticity and, depending on the new experiences of the student, generates synaptogenesis.

## DIGITAL ETHICS FOR CHILDREN AND ADOLESCENTS

According to Bandura *apud* Borges-Andrade, there are four steps to an archetype in the modeling process in his theory:

- Attention: the attention of the modeler or learner must be focused on the model, otherwise the learning will be interrupted.
- Memory: the individual must retain what he has observed in order to later execute it.
- Reproduction: the behavior is initiated and the person must be able to imitate it, not necessarily the same, but must perform it.
- Motivation: in this part it is necessary to know what led the person to perform the behavior. What do you want to achieve with imitation? You might want to get to the same state as your model. (1981)

In the family nucleus, the patterns as well as models are constantly molded and passed through the aforementioned archetype, precisely because learning is done through the emotional nature of the cognitive stimulating connection between the child and parents or guardians or grandparents, regardless of the pernicious or benign paradigm. For the other environments, which will be socially part of the individual's coexistence and will make a difference in the maturation of the cognitive psychological, the process of assimilation and accommodation must also include the person whom the minor identifies with "deference, respect, charm, consideration".

However, from the first steps of life, it is necessary to start introducing ethics for children and young people, because "relativity applies to physics, not to ethics" (Albert Einstein apud LISBOA et.al, 2021) and when this human being physically transposes to the family group, this competence will be essential, as well as this issue will be applied to the digital world.

In other words, when being introduced to the use of electronic devices, it is essential to teach where data flows from and that it can be tracked. That is, a cell phone that performed a certain activity can, through forensic extraction, verify the evidence of the activities performed on it, in this digital literacy it is also essential to teach that just like the street where cars travel, the internet is a means of communication in which it contains dangers, in addition to that for certain uses in this means of communication it is essential to train and self-sufficiency so that one does not fall into deception or in other cases,  Where there is a minor involved, supervision is required.

## INTERNET: MEANS OF COMMUNICATION VS. DIGITAL EVIDENCE... HOW TO RAISE AWARENESS?!

According to Corga (1998, p.70), social psychology consists of:

> [...] a set of foundations, convictions and expressions that make up and dynamize a culture. This set is recognized by a community, just like its marks, as the characteristics belonging to this group, and that, therefore, differentiates it from the others.

In other words, the societal teacher teaches through the "colorful" campaigns of the months so that the individual's cognitive process the information through the emotional and arouse his attention. However, when one is in active coexistence within a group, it is likely that the person adjusts or excludes himself from that group, so it is necessary that the "organizations", "schools", "families" educate their parts about values, decisions, what is allowed, what is not allowed regarding human behavior within the construction of citizenship and the connotation of positive and negative value.

The primary awareness mentioned above will make a difference when entering the digital environment, because the operative group of a given structure already has in a centered way value, notion of structure, power, legislation, how society is constituted. According to the Presidency of the Republic (2015), cyberbullying is intimidation using the internet with the purpose of harassing, violating, embarrassing the person who is the victim of bullying, in addition to these activities, it is also possible digitally to curtail the action of an individual in this means of communication or even impersonate someone else.

ISO 27037, which provides for forensic work, standardization of the treatment of digital evidence for investigation and preservation of the integrity of digital evidence with its methodology within the judicial process to obtain reasonableness, evidentiary effectiveness and relevance. Therefore, in the use of this standard, it is necessary to follow the procedures of "identification, collection, acquisition and preservation of digital evidence" so that it can have probative value and assist the organization or the judiciary in its procedures and interventions.

The following are considered devices that can be worked on by digital forensics:

- Digital storage media used in computers, such as HDD, CD/DVD, flash drive
- Smartphones, tablets, personal digital assistants (PDA), personal electronic devices (PED), memory cards;
- Mobile navigation system (GPS);
- Digital video and photography cameras (including CCTV);
- Desktop, notebook;
- Internet of Things (IoT): A network of connected devices and technology that facilitates communication between devices and the cloud. Example: home security systems, refrigerators connected to the internet, electronic locks, air conditioning connected to an

Alexa or various other devices connected to it, connected car such as voice assistance, automatic braking, among others.

In view of the above, it is of paramount importance to make every individual who uses an electronic device aware that their activity on this device is recorded and can be recovered through an ethical, non-judgmental, non-biased and fair process. According to ECA in its articles 100 and 104:

> Art. 100. In the implementation of the measures, pedagogical needs will be taken into account, giving preference to those aimed at strengthening family and community bonds. [...]
> IX - parental responsibility: the intervention must be carried out in such a way that the parents assume their duties towards the child and adolescent.
> [..]
> Art. 104. Minors under eighteen years of age, subject to the measures provided for in this Law, are not criminally chargeable.
> (ECA, 1990)

Minors under 18 years of age are liable to be judged for their acts and actions made on the "internet" as well as adults, however, according to the ECA, from the evaluation of the judiciary, initially who will answer will be their "father" or "mother" or "grandmother" or "guardian". A situation that the minor is probably not aware of is that, depending on the deliberations in the sentence, even the removal of guardianship may be included for those responsible judged in the name of their action, according to article 129 of the ECA:

> Art. 129. The following measures apply to parents or guardians:
> I - referral to an official or community family protection program;
> I - referral to official or community services and programs for the protection, support and promotion of the family; (Text given by Law No. 13,257, of 2016)
> II - inclusion in an official or community program of help, guidance and treatment for alcoholics and drug addicts;
> III - referral to psychological or psychiatric treatment;
> IV - referral to courses or orientation programs;
> V - obligation to enroll the child or pupil and monitor his/her attendance and school performance;
> VI - obligation to refer the child or adolescent to specialized treatment;
> VII - warning;
> VIII - loss of custody;
> IX - dismissal of the guardianship;
> X - suspension or dismissal of paternal power, family power. (Expression replaced by Law No. 12,010 of 2009) Term
> Sole paragraph. In the application of the measures provided for in items IX and X of this article, the provisions of art. 23 and 24. (ECA, 1990)

Thus, unless there is a pathological dysfunction among family relationships, but it must be considered before committing a crime for "only" exposing your "toxic" opinion on the internet or on a social network application, which your guardian will respond to on your behalf. This is the basic type of awareness for all underage users who use electronic devices connected to the internet and for those who use a disconnected device, it is important to know the other crimes committed by storing certain files in it, such as: an adult who "safeguards" "pornographic" files of children and adolescents

on a certain electronic device, Article 241-B of the ECA may include: "*acquiring, possessing or storing, by any means, a photograph, video or other form of record that contains an explicit or pornographic sex scene involving a child or adolescent*".

## COGNITIVE PROCESS FOR DIGITAL EDUCATION

Some research undertaken by Emília Ferreiro shows that the computer does not interfere in the concept of representation of alphabetic writing. However, its use influences the learner in several issues: in the notion of spacing and in decisions about the arrangement of the text on the page; experimenting with shapes, colors, and size of letters; in the perception of marks and automatic spelling corrections.

However, it is necessary to be aware that some devices have physical and system sensors, for example, biometric sensors are physical sensors, with installed hardware, while infrared sensors that map the face in three dimensions using points that are interpreted by the device's software. In other words, digital technologies can help from psychomotricity, musicality or even exact, biological or human subjects in a playful way through the multiple sensors installed in the devices, whether via hardware or software.

In this way, ICTs can help the cognitive process to support neuroplasticity and reorganize the development of learning in an expressive way, making new connections from new experiences and encouraged by the educator, supporting and reinforcing the necessary skills that the student demands to develop, which requires that it be a permanent memory within their learning process. Not just a space within short-term memory that is soon "lost".

Digital technological literacy in the classroom is a crucial element in preparing students for the contemporary world, where digital skills are indispensable. Let's explore this approach in detail:

## DIGITAL TECHNOLOGICAL LITERACY IN THE CLASSROOM

Digital technological literacy in the classroom concerns the insertion of digital tools through technological skills within the teaching and learning process inserted in the midst of the student public and a priori, aims to enable students to correctly and pedagogically use these digital technologies effectively and critically, preparing them for academic life. professional development aimed at your personal and concrete growth as a person.

Due to this technological and evolutionary demand that has been growing every day with a range of cerelicity among students and this growth, it is almost impossible to keep up, because it is important to recognize that it is necessary to enable new learning and/or arouse the interest of the student for the use and construction of new knowledge about the use of these Digital Information and Communication Technologies (TDICs).

According to Base (2018),

> "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." (BNCC, 2018)

## IMPORTANCE IN EDUCATION

Digital skills are essential for most careers. Teaching these skills at an early age prepares students for the job market. Digital technologies allow for more personalized teaching approaches, adapting to the individual needs of students. Digital tools can make lessons more interactive and engaging, increasing student interest and motivation.

## COMPONENTS OF TECHNOLOGICAL LITERACY IN THE CLASSROOM

Teach students how to correctly use hardware (computers, tablets, smartboards) and software (word processors, spreadsheets, presentations) in a pedagogical format, enabling them to research efficiently and leading them to evaluate the credibility of the online sources in which they are researching. Properly instruct about safe online practices of good research, data privacy and ethics in the use of the technologies in which they are making use. Encourage them to create their own digital content, such as blogs, vlogs, videos and multimedia presentations, making use of digital platforms that promote collaborative, qualitative work and good communication between students.

## IMPLEMENTATION METHODS

Use of educational platforms, such as tools such as Google Classroom, Microsoft Teams and Moodle and others facilitate the management of classes and interaction between students and teachers. Classes in an interactive way with the use of educational apps and games to make learning more dynamic, didactic and playful. Practical projects where students use digital technologies to solve real problems in an interdisciplinary way, both in the construction of projects and in their realization. And finally, the training of educators in the effective use of digital technologies (ICTs), ensuring that they feel comfortable and have the skills to teach these new technologies in the classroom.

## CHALLENGES AND SOLUTIONS

The lack of access to devices and the internet in many schools still remains one of the biggest challenges in much of our country. Even with some government solutions or programs and partnerships with companies to provide equipment and connectivity, there are still great difficulties to work with ICTs in most schools, especially in public schools. Not only due to the lack of

technological equipment, but also due to the lack of training of many education professionals, many teachers may not feel prepared to use digital technologies and/or do not have training to use them in their classes. It is necessary to take a close look at this demand, which grows more and more every day according to the use of digital tools, and offering continuous training and technical support can help overcome this barrier and open up a range of opportunities not only for students but also for education professionals.

Digital technological literacy in the classroom is critical to preparing students for the challenges in their lives. Implementing these practices not only requires investments in infrastructure, teacher training, and the development of curricula adapted to new technological realities, it's more than that! It is to contribute to the formation of ethical citizens who will have a posture with an integrated and inclusive approach, where it will be possible to provide students with the necessary tools to become competent and critical citizens in the face of this digital world that often lives in the face of inauthenticity.

## FINAL THOUGHTS

The significant use of technologies in digital education has the attribute of transforming the way we learn and teach, making education more accessible, personalized, and efficient. However, to achieve these benefits, it is essential that the implementation of these technologies is carefully planned and prepared by a strong foundation and the appropriate qualification of educators.

Therefore, for the use of technologies in digital education to be truly transformative, contemporary and revolutionary, a joint effort is needed to overcome challenges and maximize the benefits it brings to the entire evolutionary context of those involved. Digital education has great potential to create a more inclusive, engaging, and effective learning environment, but this will only be possible with a strategic approach and an ongoing commitment to teacher training and improving technological infrastructure for the benefit of students.

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