



Pedagogical and technological mediation: concepts and reflections on teaching in digital culture

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Abstract

Teaching and learning in the digital culture demand care and reflections inherent to the current moment. With the presence of technological innovations and greater democratization of digital technologies, the teacher's performance, judiciously and critically, is essential to achieve good results. This article aimed to discuss the concepts of pedagogical mediation and technological mediation and to raise some reflections on teaching in the context of digital culture. Based on a theoretical essay, the concepts related to mediation are discussed and reflections are raised about the teacher as a mediator and the use of digital information and communication technologies (DICTs) in teaching in digital culture. In addition, we briefly discuss the conditions without which it becomes challenging to incorporate effective pedagogical and technological mediations in teaching work. Keywords: Digital culture. Teaching. Pedagogical mediation. DICTs.

Mediação pedagógica e tecnológica: conceitos e reflexões sobre o ensino na cultura digital

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Resumo

O ensinar e o aprender na cultura digital demandam cuidados e reflexões inerentes ao momento atual. Com a presença de inovações tecnológicas e uma maior democratização de tecnologias digitais, a atuação do professor, de forma criteriosa e crítica, é essencial para se alcançarem bons resultados. Este artigo teve o objetivo de discorrer acerca dos conceitos de mediação pedagógica e de mediação tecnológica e suscitar algumas reflexões sobre o ensino no contexto da cultura digital. A partir de um ensaio teórico, discorre-se sobre os conceitos relacionados à mediação e levantam-se reflexões acerca do docente como um mediador e do uso de tecnologias digitais de informação e comunicação (TDIC) no ensino na cultura digital. Além disso, discute-se brevemente acerca de condições sem as quais se torna desafiador incorporar efetivas mediações pedagógica e tecnológica no trabalho docente. Palavras-chave: Cultura digital. Ensino. Mediação pedagógica. TDIC.

Mediación pedagógica y tecnológica: conceptos y reflexiones sobre la enseñanza en la cultura digital

Resumen

La enseñanza y el aprendizaje en la cultura digital demandan cuidados y reflexiones inherentes al momento actual. Con la presencia de las innovaciones tecnológicas y una mayor democratización de las tecnologías digitales, la actuación del docente, de forma juiciosa y crítica, es fundamental para lograr buenos resultados. Este artículo tuvo como objetivo discutir los conceptos de mediación pedagógica y mediación tecnológica y plantear algunas reflexiones sobre la enseñanza en el contexto de la cultura digital. A partir de un ensayo teórico, se discuten los conceptos relacionados con la mediación y se plantean reflexiones sobre el docente como mediador y el uso de las tecnologías digitales de la información y la comunicación (TDIC) en la enseñanza en la cultura digital. Además, discutimos brevemente las condiciones sin las cuales se vuelve desafiante incorporar mediaciones pedagógicas y tecnológicas efectivas en el trabajo docente.

Palabras-clave: Cultura digital. Enseñanza. Mediación pedagógica. TDIC.

Introduction

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The context of digital culture has been marked by its disruptive trait, abrupt changes, and by its influence, which has impacted the forms of interaction, teaching, and knowledge construction. In this reality, means that make it possible to reorganize and re-signify perspectives of time and teaching and learning spaces become more popularized, stemming from, for example, the adoption of digital information and communication technologies (DICTs) in conjunction with new methodologies and techniques of teaching in contrast to some more traditional perspectives.

If, on one hand, the current reality is marked by a greater democratization of access to digital technologies, on the other hand, tensions that are inherent to the changes caused by digital culture start to appear. Sometimes, in order to contemplate the new demands of this context, (pseudo)innovations and educational fads emerge and gain space in educational institutions, but they lack theoretical foundations, pedagogical care or even effective conditions for the teaching practice.

Teaching and learning amid digital culture demand care so that they do not fall into empty practices without proper foundations and can, in some way, contribute by contemplating the daily needs of the 21st century. In this sense, in the challenge of creating more meaningful, hybrid, and/or flexible



contexts, teacher mediation and performance play fundamental roles in the teaching process.

Thus, it is understood that the mere incorporation of DICT is not enough to guarantee teaching effectiveness, since the teacher's pedagogical action exerts an important influence on the existing mediation processes in the teaching practice. The question then arises: how can the concepts of pedagogical mediation and technological mediation relate to teaching in digital culture?

For this, we sought to discuss the concepts of pedagogical mediation and technological mediation and raise some reflections on teaching in the context of digital culture. It started with bibliographical research of a qualitative nature (CERVO; BERVIAN; DA SILVA, 2007; FLICK, 2009), presenting a theoretical essay aimed at conceptualizing, discussing, and reflecting on the theme. This article is the result of the master's dissertation entitled *Inverted Learning in Higher Education: The Pedagogical Mediation Process in the Humanities*, developed in the Interdisciplinary Graduate Program in Education, Language, and Technologies, at the State University of Goiás (PPG-IELT-UEG).

To carry out this discussion, we start with an overview concerning the definitions of the processes of mediation, pedagogical mediation, and technological mediation, and their relations with the role to be developed by the teacher.

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Mediation: concepts

In the context of teaching, the discussions and reflections that took place in different realities have resulted in the use of concepts such as pedagogical mediation and technological mediation, both focusing on the reflections developed in this text. The importance of understanding these processes, which are the basis for the teaching practice, is highlighted, and in order to start the debate on such concepts in digital culture, the starting point is understanding what mediation is.

For Peixoto and Santos (2018, p. 422), the concept can be related to two definitions: "1) intermediary action aimed at conciliation or agreement between two parties, or; 2) constant relationship between facts, actions, and experiences, whose tension leads to change from the original state". According to the authors, both definitions are the basis for the development and use of the term "mediation" in several fields, adding a diversity of meanings in areas such as education, communication, anthropology, arts, culture, among others. Thus,

[...] mediation can also mean facilitating the relationship of subjects with other people or things, such as digital technology mediating between people on social networks, the teacher mediating in the classroom, the book facilitating the reader's access to knowledge, etc. Thus, before seeking conciliation between two parties, mediation seeks changes, evolution, or separation from the current stage (CARVALHO; SILVA; MILL, 2018, p. 433).

Hence, the definition of mediation brings aspects that range from conciliation to the provocation of situations of conflict and tension, so that it is possible to generate movement, changes, and transformations. In this sense, it is understood that, when mediating, there is intentionality in the promotion of advances from the current stage in which the subject is.

As Peixoto and Santos (2018) argue, the process of constituting the concept of mediation is permeated by the influence of thinkers such as Hegel, Marx, and Vygotsky. In the Hegelian perspective, mediation is the result of a dialectical process, establishing a link between the immediate and the mediate, so that the opposites allow the synthesis, leading to an alteration of the state that generated the tension between these opposites. The Marxist perspective, on the other hand, brings the understanding of man as a historical subject; in this way, mediation is understood as a process, and not just as the result of human actions. Finally, the Vygotskian view is understood as a way of approaching the definition of mediation and the context of education.

This approximation is less connected to the elements that make up the relationships present there and more related to the articulation of such elements, so that mental functioning and human action are mediated by different artifacts, which can be both material - tools or physical instruments - and symbolic - psychological instruments or signs (PEIXOTO; SANTOS, 2018). Mediation, in the socio-historical perspective, is present in all human life, and, as defended by Vygotsky, technical instruments and sign systems, which are historically constructed, are responsible for the mediation process of human beings amongst themselves, and also of them versus the world (REGO, 2012).

Such understanding allows the teacher to think about their role as a mediator for the relationship between the student and the object of knowledge, while conducting the educational process. Thus, Silva (2013) points out that, within the pedagogical practice, mediation occurs fully from the moment the teacher starts using other cultural mediators. These cultural mediators are the signs



and instruments which enable students to appropriate the object of knowledge and scientific knowledge.

Therefore, approaching mediation in educational practices requires considering the relationship between the subject and the object of knowledge, which implies understanding how the individual learns and how their appropriation of knowledge takes place (PEIXOTO; SANTOS, 2018). When dealing with mediation in education, it is important to emphasize the constant dialogue with didactics, providing spaces for the search for better strategies for the teaching process.

As Peixoto (2016) presents, mediation has its complexity, which involves the subject, the object, and the interval between them, in addition to the context in which the relationships between these elements occur. According to the author, “[...] mediation includes language, technology, the teacher, the student, the historical moment. [...] This approach requires thinking of mediation as a relationship as opposed to a thing or object” (PEIXOTO, 2016, p. 373).

In this sense, learning is related to “[...] the recognition of students' potential and differences, the action the subject takes in the face of the challenges posed by the teaching situation, and the mediation of the other” (NUNES; SILVEIRA, 2009, p. 106). It is understood that learning is linked to the learner, as well as to their learning possibilities, which are created and mediated by the other. Linked to the other, learning is related to the pedagogical mediation to be carried out by the teacher and, in times of digital culture, it also has the help of technological mediation in a reality permeated by DICTs. These forms of mediation are presented and discussed in the following sections.

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Pedagogical mediation in the teaching process and teacher performance

The simple contact with the teacher or the object of knowledge does not guarantee that the teaching-learning process will be effective. It is understood that the student's intellectual activities do not take place mechanically, but through interaction situations, so that the mere immersion in a training environment will not necessarily promote development and learning based on culturally defined goals (OLIVEIRA, 1995; NUNES; SILVEIRA, 2009). Consequently, there is a need for pedagogical practices that facilitate and encourage the active participation of students and teachers, and that,

[...] in addition to being able to create new connections and elaborations at the level of a given content, it favors the development of higher mental processes that involve analysis, syntheses, abstractions, and intelligent generalizations. (COUTINHO; MOREIRA, 1992, p. 159).

It is understood that pedagogical mediation is the teacher's attitude and behavior regarding the way they present or treat a certain content or theme, in order to help the student understand and deal with the information posted, moving towards producing knowledge and transferring it to their reality (CRUZ, 2018). In the current context, information is available in different ways, especially with the presence of the internet, and "[...] it is up to the teacher to ensure that the student can transform the information acquired through transmission or construction into 'knowledge', that is, the structured body from different theoretical and practical fields" (AMARAL, 2012, p. 261).

As any complex process, pedagogical mediation demands planning, time, organization, and knowledge on the part of the teacher, in addition, of course, to the existence of structure and conditions for them to exercise their teaching role. This is necessary so that you can transpose your intentions to think, structure, and implement your pedagogical work to achieve the intended learning objectives.

In this way, pedagogical mediation can be thought as a practice in which the teacher acts as an "[...] advisor, consultant, counsellor, planner and facilitator of learning situations" (MASETTO, 2013, p. 142). It is understood that the idea of pedagogical mediation is related to the

[...] promotion of interactions, working in collaboration and content support, to stimulate the appropriation of knowledge. It clearly refers to human actions, with concerns aimed at learning (CARVALHO; SILVA; MILL, 2018, p. 433).

For the teacher to have the possibility of achieving their intentions and learning objectives, when acting as a mediator, they can create a safe, welcoming environment, conducive to student development and learning. Masetto (2013) summarizes that, in this concept, the teacher is a mediator who acts in the relationship between the student and learning, facilitates, encourages, and motivates the process. With this, the professional standing in front of the students can make use of different teaching strategies so that learning becomes possible



for them, so that it occurs in a meaningful, contextualized, and inclusive way. Pedagogical mediation is about understanding how the relationship between learning, student, and teacher takes place. It is in this sense that “[...] mediation happens with the teacher and the student within the pedagogical relationship. Teacher and student mediate together” (PEIXOTO, 2016, p. 374).

The teacher's presence is essential to create the necessary conditions for the students, so that they can attribute meaning to the information received through different sources, languages, and media. The value of learning in the educational context is directly related to the ability to “[...] introduce students to the meanings of culture and science through cognitive and interactional mediations provided by the teacher” (LIBÂNEO, 2011, p. 29). Thus, corroborating Peixoto and Santos (2018), knowledge is understood as the result of complex relationships, involving interactions of people with each other and also with nature. As a result, knowledge is constructed and influenced by cultural, political, social, and historical issues of each era. Thus, the teacher can make use of a suitable space for students to be encouraged to appropriate cultural meanings, knowledge, and the knowledge that is socially and historically constituted.

In order to implement this process of knowledge appropriation, it is necessary that pedagogical mediation be part of the teaching routine. Thus, the teacher acts as a mediator, facilitator, encourager, and motivator of situations, experiences, perception, paths, and learning opportunities. He plans and streamlines teaching situations, works collaboratively with students, and leaves behind the label and role of acting only as a mere “transmitter” of systematized knowledge. In this reality, it is noteworthy that, in the teaching practice,

[...] the fact of becoming a mediator of student learning does not release teachers from the responsibility of planning: to prepare well-founded and, at the same time, attractive lessons for students; to create problematizing and challenging situations; to carefully monitor the development of their students and record their progress and difficulties; to prepare activities and select appropriate materials to overcome such difficulties; to program the expansion of learning spaces, taking advantage of the community's physical space and the resource persons available in it: varying procedures and resources (AMARAL, 2012, p. 259).

Thus, it is up to the teacher to develop and offer a set of strategies to promote learning in a reflective, critical, and judicious way. In this way, mediation, as a pedagogical attitude, can be summarized as

[...] a way of presenting and treating a content or topic that helps the learner to collect, relate, organize, manipulate, discuss, and debate information with their colleagues, the teacher, and other people (interlearning), until they are able to produce knowledge that is significant for them, incorporated into their intellectual and experiential world, and helps them understand their human and social reality, and even interfere with it (MASETTO, 2013, p. 151).

Pedagogical mediation is understood as the manner in which the teacher will guide the teaching and learning experiences; the way you will treat, approach, and develop the contents to build knowledge with the students. In other words, it is the way in which the teaching action occurs in the conduction of the teaching process.

The teacher's performance can occur through a variety of methodologies and strategies, such as: work projects, interviews, exhibitions, panels, dramatizations, problem solving, teamwork, and organized groups to facilitate differentiated instruction, or promote the integration of students at different learning levels. In this role as a mediator, teaching planning involves the selection of actions and strategies based on pedagogical intentions and desired objectives.

As stated by Neiva and Toschi (2014, p. 126), "[...] the role of instigating thought, doubt, the elaboration of questions, the presentation of challenges, and the desire to go beyond training that is already given" are all up to the teacher. That is, more than using different strategies and tools to promote the teaching and learning process, the teacher's role aims to guide the student beyond the state of knowledge in which he is. Understanding a teacher who mediates the teaching and learning of historically constructed knowledge and the appropriation of human production, it should be emphasized that

their role in the learning process is fundamental, so they need to continually reflect on the knowledge they propose to teach, how to teach it, what experiences they should organize, and how they can intentionally mediate learning (SILVA, 2013, p. 39).

[...]

It can be said that learning, as a social experience, is a process mediated by the use of instruments and the appropriation of cultural



signs, in which it is up to the teacher to help students to organize thoughts and actions and to internalize the knowledge historically produced (SILVA, 2013, p. 39).

When entering the pedagogical mediation process, it is perceived that the teacher, in a context increasingly permeated by DICTs, is confronted with new situations, instruments, and cultural signs, and, consequently, new challenges and tensions typical of digital culture arise. In order to minimize part of the discomforts of that time and be able to improve their performance, Masetto (2013) suggests the need for the teacher to know the new technological resources, use and understand them to plan and enable a more efficient teaching-learning process, one that is dynamic and motivating to the students. At the same time, the relevance of a cautious and critical perspective is highlighted, especially regarding the new technological artifacts, with regard to the tensions of this time, such as protection of data and information.

Furthermore, it is emphasized that just incorporating digital media and technologies into the teaching process is not enough. The use of such technological resources can be aimed at enabling dynamic processes in the relationship between teacher, student, and learning. As Masetto (2013) and Libâneo (2011) approach, it is not about replacing “old tools” or technological means to make use of more current and advanced resources, or privileging the media with more audiovisual features while disregarding the mediation processes.

It is in this sense that the relevance of understanding the concept of technological mediation is also presented, closely linked to the process of pedagogical mediation in digital culture.

DICTs context and technological mediation

In the 21st century, more and more efforts have been made to understand issues that unite the use of DICTs and the teaching and learning process. In this context, marked by new ways of (re)organizing, structuring, and dynamizing teaching times and spaces, tensions and precautions related to the educational process also arise.

In the midst of the constant emergence of educational (pseudo)innovations, new teaching strategies, and methodologies, concerns about the

implementation of DICTs in a naive, uncritical way or as a magical solution to traditional teaching questions and challenges reappear.

From this perspective, it must be understood that, as highlighted by Brito (2015, p. 30), “[...] technologies cannot be seen as ends in and of themselves, but as extensions of the subject's relationship with reality through the processes of apprehension they provide”. One should reflect on the complexity of advances in technologies in the context of education, not treating them with extreme and opposite approaches. From that, it is agreed that

[...] technologies can be artifacts of control, unreflective aggregation of the values of modernity, massification, and consumption; however, they can also be instruments for human promotion and knowledge transformation. Digital technologies are cultural, symbolic artifacts that are configured through social relationships and practices (BRITO, 2015, p. 17-18).

The need not to adopt a position of extremism about the use of technologies and digital media in education is assumed, whether interpreting them as absolute solutions or as causes of the challenges and ills experienced in pedagogical practice. Corroborating and expanding this view, let's look at the words of Peixoto:

[...] the more technically sophisticated they become, the more we idealize technological devices and run the risk of giving them excessive trust, in a kind of idolatry (I can't live without my cell phone). And, conversely, when we condemn these devices, attributing to them the responsibility for the evils of humanity (Facebook is destroying human relationships), we can fall into an excessive idealization of the human (PEIXOTO, 2016, p. 375).

The DICTs should be seen neither as villains nor as saviors of the challenges experienced in society or in the teaching practice. It is necessary to analyze its uses, possibilities, and limitations critically and carefully, seeking to understand the context, interests, and factors that influence and are influenced by them. Even with the dilemmas, issues and difficulties that are present with a greater diffusion of digital technologies, this reality cannot serve as an argument to ignore or hide the potential of DICTs when properly incorporated from a careful planning and a teacher's performance that is critical and conscious.



For Masetto (2013), part of the controversial debate on whether or not to use DICTs in the educational context could be overcome by rescuing discussions about the importance of the learning process, and reflections on the integration of the usage of these technologies along with the attitude of teachers' pedagogical mediation. Taking into account this understanding of pedagogical mediation and its relationship with elements such as DICTs is the first step to discuss the concept of technological mediation.

As described by Carvalho, Silva, and Mill (2018), the expression "technological mediation" results from a contemporary debate in the educational field, which involves didactics and pedagogy in a process of approximation with technology. For them, pedagogical mediation, within the educational context, presents several different technologies, including conventional and analog, as well as the "[...] latest technologies, among which those of digital basis [DICTs] stand out [...], such as new media, open resources, learning objects, virtual environments, etc." (CARVALHO; SILVA; MILL, 2018, p. 433). For the authors, such technologies permeate the process of reflection, selection, and appropriation, in order to be thought out and directed towards the implementation of pedagogical mediation practices in education. This is why they understand that the term "technological mediation" is connected to the use of technologies in their articulation with didactic-pedagogical objectives in addition to being associated or correlated with the pedagogical mediation concept. Resulting from this, the term "education mediated by technologies" is also used.

In summary, technological mediation can be understood from a process of planning and organization of teaching, considering the pedagogical objectives and intentions, in order to think about the incorporation of technologies (digital or analog) in the teacher's actions, in a constant dialogue with the pedagogical mediation process. Thus, technological mediation can be interpreted as a kind of expansion of pedagogical mediation, considering the technologies of a given context.

Hence, when the technological mediation takes place, it is understood that the technological resources and artifacts have gone through a careful process of selection, curation, appropriation, and contemplation by the professor, taking into account their pedagogical objectives and intentions. In digital culture, it is possible to rely on digital or analog technologies, with an emphasis on DICTs when thinking about technological mediation.

Therefore, technological mediation can be understood as the result of an approximation between reflections on pedagogical mediation and discussions that comprise practices and interventions in educational processes through use technologies (CARVALHO; SILVA; MILL, 2018). The technological mediation process cannot be confused with simply incorporating digital media into teaching - teaching with DICTs. Adopting this view would be “[...] as if digital technologies constituted magical artifacts that place subjects in a communicational environment that is necessarily favorable to educational processes” (PEIXOTO, 2016, p. 368).

Defending this cause-and-effect relationship can point to great naivety. Discourses addressing this view must be questioned so it is possible to understand why there is a “blind defense”, a situation that often highlights only positive aspects of the use of certain technologies in educational processes. Similar questions and reflections are also relevant when dealing with topics such as educational innovations and innovative methodologies, among others.

Corroborating Sabota (2017), DICTs should not be the protagonists in teaching situations, but act as instruments to assist the teacher in their learning mediation process. This is how, in the educational environment, pedagogical mediation and technological mediation must be thought of together and focused on practices for the effectiveness of the teaching process. In this sense, it also becomes possible to meet the contexts and possibilities that lead to innovations or transformations in education, with the reformulation of practices and the proposition of new ideas, in a judicious and critical manner, so that one does not fall into vague discourses without due foundation, or ones that only incorporate technologies without proper concern for pedagogical aspects.

In order to avoid fads that are empty of theoretical foundation or that become educational “pseudo-innovations”, these mediation processes with the help of DICTs must be well planned and implemented, opening paths for the promotion of new possibilities. And, in the midst of this, with more traditional models of education becoming obsolete, reasons and motivations are created for the adoption of practices that are hybrid, flexible, and/or innovative (SGOTI; MILL, 2020). This context, which shows a greater democratization of access to digital devices, the internet, and other technological artifacts, also includes more fertile spaces for DICT incorporation. In addition, this reality can enhance methodologies and strategies that seek to form a dialogue with the current moment and present alternatives and new paths for the teaching process.



Seeking to discuss this scenario, we present some reflections and notes from the mediation processes in digital culture.

Reflections on innovation, the use of DICTs and teaching in digital culture

Innovating has been a recurring demand in education, mainly due to the changes that have been taking place in the contemporary world. For some authors in the educational field, innovating is one of the actions that can help in the process of transforming education (CAMARGO; DAROS, 2018). Thus, innovation can present itself in different ways: either through the adoption of new artifacts and media that impact the relationships among subjects or between the subject and the object of knowledge, or by relating it to the teaching methods and techniques incorporated in teaching practice.

Over the last two decades, society has undergone significant transformations, generally driven by digital technological innovations that emerge at an ever-increasing speed (KENSKI, 2013). These transformations affect different spheres of social life – economic, political, cultural, etc. –, generating rapid changes that impact the way of accessing, mediating, and producing knowledge for education and for the professional exercise of teaching (LIBÂNEO, 2011; SABOTA, 2017). In addition, digital technologies are increasingly present in society's daily life, being developed at a speed never seen before and becoming more compact, faster, and portable.

In this context, characterized by digital culture, technical innovations arise for the most diverse digital devices, which today have greater utility and functionality than devices present in the 1990s (BERRIBILI et al., 2019). So it is understood that

[...] the social insertion of these new technologies has occurred with the same speed and intensity with which they are offered, they are incorporated and discarded shortly afterward, replaced by something new, more powerful, and different, in multiple senses. [...] Increasingly accelerated cycles occur in the processes of creation, industrialization, consumption, and overcoming contemporary digital technologies. And we got used to that movement. In many cases, we don't even notice it anymore, because speed has already been

incorporated, as a value, into our rhythm of life (KENSKI, 2013, p. 61-62).

It must be considered that these changes and the incorporation of DICTs in everyday life have reflected in the way people interact, breaking temporal and geographical barriers. For Kenski (2018, p. 140), digital culture is characterized by being primarily virtual; something that allows it to be accessible “[...] through interfaces that place users in different times and spaces than their physical bodies”. According to the author, change or rupture is the main characteristic of this culture, especially with regard to the concepts of linear space and time. This is because digital culture breaks boundaries, ensuring “[...] ubiquity and mobility, that is, conditions to be virtually anywhere, at any time” (KENSKI, 2018, p. 141).

Although the changes incorporated in society through digital culture arrive slowly in education, pedagogical practices and pedagogy itself undergo a transformation that stems from a greater ease of access to information, and this is how new competencies in digitally mediated educational culture become evident (KENSKI, 2018). For Sabota (2017), this generates a demand for the development of skills and competences related to digital literacy, proving the teacher's preparation to deal with the challenge of integrating digital technologies in school contexts essential, since these technologies are already present in the way of life of a large majority of the urban population. In the same context, Sgoti and Mill (2020) emphasize the requirement for new behaviors in relation to knowledge acquisition, making it also necessary to develop the ability to follow all this complex evolution that has occurred in communication, information, and social relationships.

In addition to the use and incorporation of digital technologies uncritically or naively, the context of cyberculture has also generated other discomforts in the educational scenario. In this sense, Moran (2018) presents that numerous possibilities can be created from DICTs, however, he also recognizes the presence of tensions and great challenges. This reality can be attributed to issues such as the speed at which new artifacts, technologies, or functionalities emerge, the resistance from professors and even students concerning the use and appropriation of digital technologies, and new demands, such as those generated from remote teaching - a response to the need for social isolation due to the Covid-19 pandemic.



Kenski (2013) points out that technological culture requires radical changes in pedagogical practices and behaviors. For the author, technological advances and changes have allowed new functionalities, possibilities, and learning situations, ones with a greater and better experience, recording and monitoring of content, and interactions with other media, among other aspects. But, for that, as presented by Sabota (2017, p. 210), it is expected that teachers “[...] have autonomy in terms of access and use of digital tools [...]”, thus being able to explore their potential to improve the teaching-learning process. In order to achieve such autonomy, preparation, continuous training, and constant updating are necessary. In this sense, it is relevant that the professor is able to dedicate part of his workday to such actions, in order to become literate and, as far as possible, digitally fluent.

According to Libâneo (2011, p. 40), students and teachers need to “[...] learn to read sounds, images, movements, and to deal with them”. Therefore, it is necessary that teachers understand the different forms of media and learn to understand and write in verbal and non-verbal codes, since this understanding shortens the distances between them and the students (SABOTA, 2017). Thus, when thinking about technological mediation with DICTs in the classroom context, it is important that the teacher has autonomy for their use, being digitally literate, so that he can appropriate, select and reflect on them in his teaching practice.

In addition, the use of technological innovations in education increases the urgency of understanding the forms of interactions that occur in the learning context, taking into account mediated didactic situations (KENSKI, 2020). Education has been reformulating in terms of discourses, clothes, practices, and ideas, and has aimed to meet the demands that emerge from the new behaviors and needs of the current moment. That is why, for Sgoti and Mill (2020), innovation is essential.

When well planned, the DICTs in the mediation processes can allow changes; among them, the opportunity to re-signify the way in which the relations of time and space for teaching-learning are given. Possibilities are created for access and interaction with information and knowledge. In this sense, the look at technological mediation becomes more than fundamental when reflecting on the pedagogical mediation process in the 21st century:

Technologies expand the possibilities of research, authorship, communication and network sharing, publication, multiplication of spaces and times; they monitor each step of the process, making results, advances, and difficulties visible. Digital technologies dilute, amplify, and redefine the exchange between formal and informal spaces through social networks and open environments of sharing and co-authorship (MORAN, 2018, p. 12).

With a greater range of possibilities and spaces for interaction and learning, the exclusively expository class centered on the teacher's oratory becomes a space for tension and questioning on the part of students. In a way, expectations are created about learning experiences that dialogue with a larger presence of DICTs in the educational context, that present greater dynamics and interactivity, and are significant for student learning.

Sabota (2017) comments on his efforts to find ways that digital tools can be useful in the teaching process, shortening distances, allowing access to content and making learning times and spaces more flexible. It is important to consider that, nowadays, the propagation of information, publications and new knowledge is increasingly fast and practical. It is about finding ways and means so that DICTs do not become villains who act for disinformation and against teaching, but can actually enhance pedagogical practice.

Despite the difficulties that teachers may have regarding the use of digital tools, even with permanent continuing education and the right conditions for it being a necessity, Lima and Moura (2015) show that access to them and their use have occurred in increasingly simpler ways. The teacher does not need to be a great expert in the field of informatics to be able to use such tools, but rather "[...] define how these tools can positively assist in the learning of their students" (LIMA; MOURA, 2015, p. 94).

In this sense, an adequate curation of content, digital technologies, and applications, combined with pedagogical and technological mediation, can contribute with means to carry out a teaching process in dialogue with the digital culture context. Here, the importance of the teaching practices in the selection, appropriation, and reflection of such technologies is resumed, taking into account the previously defined objectives and the teacher's intentions.

However, thinking about this selection of resources for the teaching practice requires caution and criticality. As presented by Berribili; Mill; Monteiro e Marchetti, (2019), there are applications, platforms, and websites that profit



from teaching, or allow the monetization of the content broadcast. Thus, an educational video produced by someone who intends to achieve a higher number of views will certainly be very different from one that intends to discuss a complex concept and that requires a more detailed approach (BERRIBILI; MILL; MONTEIRO; MARCHETTI, 2019).

In this sense, it is necessary to adopt a critical look at what is available on the web, concerning its content, format, and intentionality. There is a need for careful analysis and reflection about what is present in each media, resources, and platforms available digitally, so that their use is carried out from the pedagogical intentions listed by the teacher. This view can and should also be expanded to present students with the different faces and possibilities of digital culture, as well as its risks, conflicts, and interests.

With greater accessibility, incorporating DICTs into the teaching process can lead to interactivity and dynamism in relation to online content, learning environments, spaces for joint construction, etc. Tools like these can facilitate ways to personalize learning, encourage students in their discoveries, and break with the uniformity and linearity of more traditional teaching, giving space for learning to occur at the pace of each learner, with more individualized assessments and adaptive platforms. Students can be led to learn “[...] by doing and redoing, building and rebuilding concepts” (SUNAGA; CARVALHO, 2015, p. 143). Furthermore, the presence of DICTs can serve as fuel for the teaching process, and it is up to the teacher to show students how they can use them in a critical and productive way (LIMA; MOURA, 2015).

These and other questions are possible and viable from careful planning, in which the pedagogical intentions can guide the processes of pedagogical and technological mediation. Points such as the planning and incorporation of DICTs provide an opportunity to imagine and reflect on a multitude of paths in the educational practice, such as rethinking and reformulating aspects like the new temporal and spatial perspectives in education, reflecting on pedagogical flexibility and hybrid strategies, among other topics inherent to the context of teaching in digital culture. These and other possibilities have been discussed and present new paths and training journeys that dialogue with the context of digital culture and current demands, such as those caused by the Covid-19 pandemic that reflected in the teaching and mediation processes (FERREIRA; OLIVEIRA; OLIVEIRA; DUARTE; SILVA FILHO; FERREIRA; MILL, 2022).

Finally, despite the recognition and defense that the teacher's performance is done in the best possible way to carry out the mediation processes, it cannot be ignored that their work depends intimately on the creation of conditions that are favorable to the teaching practice. It is up to teaching institutions and education departments to promote an environment that recognizes and values the work of teachers and allows for their training, qualification, and professional development, as well as offering pedagogical support and the appropriate structure for their practice. It is also the responsibility of these bodies to contemplate a reality in which there is time and viable conditions to plan, implement, evaluate, and reflect on teaching actions and practices.

As there is no favorable reality for quality performance, Freire's statement (2011, p. 65) that "[...] sometimes the conditions are so perverse that they don't even move [in the pedagogical space]" is corroborated. "Disrespect for this space is an offense to students, educators, and to the pedagogical practice" (FREIRE, 2011). If there is an unfavorable and disrespectful context, gaps that will possibly generate obstacles to the effectiveness of pedagogical and technological mediation processes start to appear.

Final considerations

In a context marked by new perspectives of time and space, education in the digital culture has been undergoing changes that impact teachers' work. Amidst the potentialities that present themselves, there is also a reality of tensions and challenges. Understanding that the teaching action goes beyond the mere contact between student and teacher, or student and the object of knowledge, as well as accepting it is not reduced to the simple incorporation of DICTs in teaching, the full comprehension of the mediation processes becomes essential.

In this sense, pedagogical mediation is perceived as the teacher's attitude or action in an intentional and structured way, considering the pedagogical objectives in question. It is seen as the way in which the teacher will guide the teaching, how they will treat, lead, and develop the contents and the process of knowledge construction together with the students. In turn, technological mediation starts from a dialogue of pedagogical mediation with the use of technologies, digital or otherwise. So, technological resources and artifacts undergo a careful process of selection, appropriation, and reflection on the part



of the teacher, acting in favor of teaching to seek or even enhance actions in order to achieve the proposed pedagogical intentions and objectives.

Thus, throughout this text, we presented some reflections on teaching in the context of digital culture, based on the understanding of pedagogical mediation and technological mediation concepts. We sought to address aspects and reflections in order to support teaching in the current reality. It is understood that, with the new perspectives and demands of the contemporary educational context, the figure of the teacher as a mediator becomes an important foundation for the teaching and learning process. Despite the present technological innovations and a greater democratization of DICTs, they should not be interpreted as synonymous with good practices in the educational context. Thus, the teacher's performance, in a judicious and critical way, is essential to achieve good results.

Based on the understanding of the pedagogical mediation concept, the teacher can focus on planning, guiding, dynamizing, and promoting situations, experiences, and paths to make teaching and learning effective. In this relationship between teacher, student, and the learning process, the teaching role is essential to enable the student to attribute meaning to the information received through different sources, languages, and media. Given this, the teacher's pedagogical attitude ranges from planning to the selection and implementation of actions and strategies to try and achieve the desired learning intentions and objectives. For this, we aim to create a space that is safe, welcoming, and conducive to the development and learning of students, creating conditions so that they can be encouraged to appropriate cultural meanings and socially and historically constituted knowledge. Thus, it is up to the teacher to develop methodologies and strategies to promote learning in a reflective, critical, judicious, and contextualized way.

In a complementary way, the teacher's role also needs to be related to technological mediation, to avoid the use of DICTs uncritically or naively. This mediation also cannot be confused with simply incorporating digital media into teaching. In a constant dialogue with pedagogical mediation, technological mediation can be understood as a process of planning and organization of teaching, based on pedagogical objectives and intentions, making it possible to incorporate technologies (digital or analog) in teaching action. In this way, from a process of reflection, selection, and appropriation, digital technologies can be adopted in favor of the effectiveness of pedagogical mediation. Therefore, in a context of changes and transformations, it is understood that comprehending

the concepts of pedagogical mediation and technological mediation can also prevent teaching from falling into educational "pseudo-innovations", which are vague discourses or practices without proper foundations. and theoretical foundation.

However, it would be a mistake to think that the teacher can carry out their work in a solitary way. For a quality teaching process, in which the teacher can carry out the necessary mediations, the need for favorable conditions to their practice is highlighted. Thus, it is necessary to guarantee aspects such as: valorization, training, qualification, and professional development; pedagogical support; adequate structure; planning time; among other points. Without those, it becomes challenging to incorporate effective pedagogical and technological mediations into teaching.

From the reflections developed throughout this text, the aim is to stimulate reflections and actions based on the understanding of pedagogical and technological mediation processes in the context of digital culture, contributing to the foundation and promotion of new practices in the teaching process. Thus, it becomes feasible to imagine and reflect on possible paths within the educational practice, (re)organizing temporal and spatial aspects, reflecting on pedagogical flexibility, hybrid, meaningful, and contextualized strategies, among other topics inherent to the context of teaching in digital culture. If there are conditions for the implementation of well-founded and planned mediation processes, in a critical, meaningful, and contextualized way, it becomes possible to create paths for the promotion of new possibilities in the teaching process.

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Note

- 1 This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brazil (CAPES)

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Recebido 4 mar. 2022

Aceito 20 jun. 2022