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Teaching practice and technological mediation: a critical analysis within UEG Teacher Education Programs[1]

Trabalho docente e mediação tecnológica: uma leitura crítica nas licenciaturas da UEG

Trabajo docente y mediación tecnológica: una lectura crítica en las licenciaturas de la UEG

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Abstract: This article discusses teaching practice mediated by technologies, considering contemporary social dynamics and the relationship between education and capitalist production. Historically, education has reflected and reproduced prevailing power structures, and with the rise of microelectronics, technologies have become central to workers' education. The research, conducted in within teacher education programs at the Universidade Estadual de Goiás (UEG), investigates how professors apply technologies into their practices, seeking to identify whether this appropriation is critical. The findings indicate that technologies are not mere instructional tools but instruments of control that may restrict teachers' autonomy. Furthermore, teacher professionalization faces ambivalences in which the tension between use value and exchange value becomes evident. Reflecting on the interrelations between work, technology, and education is essential to fostering a humanizing education that addresses social inequalities in the current context.
Keywords*:* Work; Technology; Teacher; Education; UEG.

Resumo: Este artigo aborda o trabalho docente mediado por tecnologias, considerando as dinâmicas sociais contemporâneas e a relação entre educação e produção capitalista. Historicamente, a educação reflete e reproduz as estruturas de poder vigentes, e com a ascensão da microeletrônica, as tecnologias se tornaram centrais na formação dos trabalhadores. A pesquisa, desenvolvida nos cursos de Licenciaturas da Universidade Estadual de Goiás (UEG), investiga como os docentes aplicam tecnologias em suas práticas, buscando identificar se essa apropriação é crítica. Os resultados indicam que as tecnologias não são meros recursos, mas ferramentas de controle que podem limitar a autonomia do professor. Além disso, a profissionalização docente enfrenta ambivalências, nas quais a relação entre valor de uso e valor de troca se evidencia. Refletir sobre as

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inter-relações entre trabalho, tecnologia e educação é fundamental para promover uma formação humanizadora que enfrente as desigualdades sociais no contexto atual.
Palavras-chave*:* Trabalho; Tecnologia; Professor; Educação; UEG.

Resumen: Este artículo aborda el trabajo docente mediado por tecnologías, considerando las dinámicas sociales contemporáneas y la relación entre educación y producción capitalista. Históricamente, la educación refleja y reproduce las estructuras de poder en Vigo, y con el ascenso de la micro electrónica, las tecnologías se convirtieron centrales en la formación de los trabajadores. La encuesta, llevada a cabo en los cursos de Licenciaturas de l Universidad Estadual de Goiás (UEG), investiga cómo los docentes utilizan tecnologías en sus trabajos, buscando identificar se esa utilización es crítica. El estudio revela que las tecnologías no son meros recursos, pero herramientas de control que pueden limitar la autonomía del profesor. Además de eso, la profesionalización docente enfrenta ambivalencias, en las cuales la relación entre valor de uso y valor de cambio se transforma cada vez más evidente. Por fin, la reflexión acerca de las inter relaciones entre trabajo, tecnología y educación es fundamental para promover una formación humanizada que enfrente las desigualdades sociales en el contexto actual.
Palabras-clave: Trabajo; Tecnología; Profesor; Educación, UEG.

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Introduction

The analysis of teaching work mediated by technology must be framed within a broad understanding of contemporary society and its dynamics in the world of labor. Drawing on Marx (2013), it becomes possible to reflect on the contradictions inherent in the processes of technological appropriation in schools, in the exercise of teaching, in teacher education in Brazil, and, above all, in their articulations with broader educational and societal projects.

Education has always been intertwined with the productive world, reflecting and reproducing prevailing power structures and relations of production (Sousa, 2019). From a dialectical perspective, this relationship is essential to decipher how educational institutions often serve the interests of capital, perpetuating social inequalities and the alienation of workers.

As modes of production evolve, especially with the rise of microelectronics and flexible labor arrangements designed to meet capitalist demands, technology becomes a central instrument in the reconfiguration of educational practices and the training of workers. According to Kuenzer (2002), the transition from Taylorism/Fordism to more agile and decentralized production models requires a new approach to worker training, one that fosters adaptable competencies suited to an ever-changing productive environment. This

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phenomenon exemplifies what Marx (2010) had already identified in his critique of political economy: labor power is shaped by the requirements of capital rather than by the full development of the human being.

In this study, technology is understood as a cultural phenomenon —a set of humanly produced knowledge and practices created to meet human needs. Within this context, technologies are not merely pedagogical resources but also powerful instruments of control and surveillance. Their incorporation into everyday school life can serve to monitor and standardize teaching practices, as argued by Echalar (2021), who discusses the impact of digital technologies on education and their role in shaping a new working subjectivity aligned with market demands. Thus, educational technologies can be seen as extensions of production relations, where teachers' autonomy is often constrained in the name of efficiency and productivity.

This article derives from the master's dissertation (Vieira, 2023) developed in the *Programa de Pós-Graduação Interdisciplinar em Educação, Linguagem e Tecnologias (PPG-IELT)* of the *Universidade Estadual de Goiás (UEG)*. Its objective was to understand how teaching work mediated by technology has been taking place within the Undergraduate Teacher Education Programs at UEG.

The research participants were professors from UEG's Undergraduate Teacher Education Programs, working in the University Units located in Anápolis. The study sought to understand how these educators appropriate technologies in their pedagogical practices, recognizing that such appropriations manifest in contradictory ways — sometimes as instruments of autonomy and creativity, and at other times as mechanisms of control and standardization — depending on the objective and subjective conditions of their work. The research focused on disciplines within the Core Curriculum Area of the Undergraduate Teacher Education Programs at UEG, specifically at the *Campus Central – Sede CET* and the *Unidade Universitária CSEH*, both dedicated to initial teacher education.

For data collection, the study employed documentary research for contextualization and field research to obtain detailed testimonies from participants through interviews. As a selection criterion, participants had to be professors teaching disciplines belonging to the Core Curriculum Area described in the Pedagogical Course Projects (PPCs), official curriculum design documents that define each program's pedagogical and curricular structure, namely, History of Education, Educational Psychology, Sociology of Education, Didactics, and Educational Policies.

Grounded in the philosophical assumptions of historical-dialectical materialism, the study was situated within capitalist society. Both the construction and analysis of the research

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sought to reveal the influences exerted by capitalismo, embodied in its multilateral organizations, on public policies and on discourses that legitimize the determination of technological use in education, under the banner of so-called "innovation" or "technological modernization," and how these dynamics affect the realization of teaching work.

In light of this scenario, the article aims to discuss the ontological meaning of labor, exploring the specificities of teaching work and the ways in which technologies mediate it. Furthermore, it seeks to investigate the implications of this mediation in terms of control and the formation of the working subject. Through a critical analysis, it intends to demonstrate how education, as a social practice, is immersed in the contradictions of capitalism—challenging us to rethink the purposes and methods of teacher education in the contemporary context.

The ontological meaning of labor

The organizational structure of society, as well as its social, economic, political, and cultural relations, is deeply shaped by issues related to labor and productive processes. From an ontological standpoint, labor emerges as a fundamental condition for the constitution of the human being as a social being.

As argued by Marx (1983) and Lukács (2013), human beings transform nature through labor, establishing the material foundations of their existence. It is in this process that humankind appropriates the natural world, satisfying its needs and generating use values. Thus, labor, in its ontological essence, constitutes a primordial activity for human existence, intrinsically linked to survival in its multiple social forms.

Marx and Engels (2007) also associate labor with the process of humanization. They assert that men can be distinguished from animals by consciousness, by religion, or by whatever one likes. But they themselves begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence. Hence, by producing their means of subsistence, humans not only ensure their survival but also shape their material reality, progressively distancing themselves from a purely animal condition and approaching a more human and social existence.

Vieira Pinto (2005) complements this perspective by asserting that man is a "born worker" and that his humanization intensifies as his productive capacities become more sophisticated. According to him, "it is labor that elevates reality to another degree of *amanualidade*" (Vieira Pinto, 2005, p. 69). Human labor, therefore, not only transforms the material world but also redefines how we perceive and interact with it. This transformation,

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according to Álvaro Vieira Pinto's concept of *amanualidade*, creates relationships between subject and object, elevating reality to a different level of interaction. Thus, the evolution of humanity is intimately associated with the development of its labor capacities.

The relationship between labor and life is manifested in the daily experiences of individuals. One of the research participants, when interviewed, stated:

> **Work is part of personal life; there is no way to separate them**. I don't use WhatsApp; I use email, I use my cell phone to listen to music, watch movies, and I still use SMS. But I don't have any social media. I've never had Facebook, Instagram, or Twitter. Now, after the pandemic, we always have meetings using Meet (P1, 2022, verbal statement, our emphasis).

The statement illustrates how work and personal life intertwine, revealing that material production is also the record of history and the meaning of social humanity. This perception empirically reinforces the theoretical understanding that labor permeates all dimensions of human life, linking the use of technology to forms of sociability and knowledge production. In this sense, the testimony not only illustrates but also confirms the concrete and everyday character of the relationships analyzed.

Labor, therefore, cannot be reduced to a mere productive activity; it encompasses the totality of the human being's material, economic, political, personal, and cultural life. Recognizing it as inseparable from society and its humanizing characteristics makes it evident that labor must be associated with education. Education, in turn, is a vital activity for the process of social reproduction and, as emphasized by Saviani (2013), it merges with human existence itself.

This reproduction is not limited to a logical-formal conception that preserves something identical to itself; rather, it is grounded in a dialectical concept, a contradictory movement of reality that maintains what already exists while transforming it into something new. Thus, as previously noted, it is through labor that human beings create the means, including technological ones, to satisfy their needs. Technology, therefore, acquires meaning only insofar as it plays a role in the realization of labor that is intrinsic to society.

Accordingly, when considering that education and labor are inseparable, and that technologies play a mediating role between human beings and their environment, the following section will explore the constitutive interrelations of the triad labor, technology, and education. This analysis is essential to understanding how these dimensions interact and shape human experience within society.

ISSN 2238-8346
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The triad of labor, technology, and education

In the context of capitalist society, labor assumes specific characteristics, transforming itself into a producer of exchange value whose primary objective is profit and, consequently, the continuous appreciation of capital. Under these conditions, labor power is treated as a commodity. While for the owners of capital the goal is to generate a value that exceeds its cost, resulting in profit, the worker, in order to ensure subsistence, is compelled to sell this labor power in exchange for a wage (Marx, 1983).

This transformation in the nature of labor occurred amid profound historical changes. It is important to emphasize that society was not originally formed under the capitalist mode of production. Prior to it, there existed various forms of social organization that preceded capitalism. This recognition reminds us that capitalism, just as it emerged, can also be surpassed, reflecting the dialectical idea that social structures are in constant transformation.

In Antiquity, both labor and education took place without the social stratification that characterizes capitalism. However, as humankind abandoned nomadism and established a sedentary way of life — driven by the development of agriculture — private property emerged, creating the first social division: those who owned property and those who did not. This change gave rise to an idle class that lived by exploiting the labor of others and demanded a distinct form of education. Historically conceived as a space of leisure, the school came to be reserved predominantly for the children of property owners, while the offspring of workers acquired knowledge through practice and the exercise of their trades (Saviani, 2013).

During the Middle Ages, "education continued as a privilege of the elite, worthy of dignified leisure" (Vieira, 2023, p. 53). In this period, although slavery was replaced by serfdom, education remained restricted to the nobility, the clergy, and, to a lesser extent, the high bourgeoisie, under the strong influence of the Church. Meanwhile, the working class remained excluded from formal learning, gaining knowledge through labor itself.

Within capitalist society, one of the first modes of production was the artisanal manufacturing process. Manufacture predominated, in general, from the mid-sixteenth to the late eighteenth century. In this system, the worker ceased to perform the craft in its entirety, as tasks became fragmented and the division of labor deepened. This resulted in reduced production costs and an increased quantity of goods produced in less time. The once autonomous artisan became subordinated to the direction of capital and to an internal

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hierarchy among workers themselves. This historical development, characterized by the separation between producer and means of production, is known as primitive accumulation, as it "constitutes the pre-history of capital and of the mode of production corresponding to it" (Marx, 1983, p. 515).

With the Industrial Revolution, consolidated between the eighteenth and nineteenth centuries, new forms of production emerged. Machinery was presented as a solution to reduce human effort. Marx (1983), however, argues that this is not the true purpose of machinery under capitalist logic. For the owners of capital, the introduction of machines increased productivity and, consequently, profit, intensifying accumulation. For the worker, it led to labor displacement and unemployment, deepening exploitation and perpetuating practices such as child and female labor.

The need for a school system capable of responding to the demands of urban industrial production became evident in this context. Knowledge, more than ever, was consolidated as an instrument of power. The school emerged as the dominant model of education, often conflated with the very idea of educating. Thus, today, when we think of education, we almost automatically think of the school (Saviani, 2013). This phenomenon resulted in an overload of educational responsibilities for schools, expanding curricula and instructional hours, and assuming functions once attributed to the family.

The beginning of the twentieth century introduced the Taylorist-Fordist model of accumulation, which established new forms of organizing capitalist labor by intensifying the rationalization of productive activities. The rhythm of work came to be determined by machines, fragmenting tasks to the point that workers could no longer comprehend the productive process as a whole. This pronounced division of labor aimed to maximize mass production, resulting in greater productivity and profit, but also in a deeper alienation of the worker.

Qualification became restrictive, marked by a rigid separation between theory and practice. Education began to be shaped by a project that prioritized the formation of a labor force suited to market needs, often through vocational and technical schools that reified knowledge (Antunes, 2009). The logic of Taylorism-Fordism thus disarticulated intellectual work from manual labor, promoting a form of education that served the interests of capital rather than the integral development of the human being.

Under this mode of production, education was structured by the automobile manufacturing sector under capitalist management but carried out by Workers, reinforcing the division between *homo sapiens* and *homo faber*. Educational institutions were responsible for maintaining curricula, methods, and tools that shaped subjectivities

ISSN 2238-8346
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aligned with economic principles and with the hierarchical organization of labor (Antunes & Pinto, 2017).

With the dynamism of capital, the Taylorist-Fordist model of accumulation entered into crisis between the 1960s and 1970s, leading to a re-evaluation of labor relations and productive structures. Antunes (2017) emphasizes that this crisis reflects the intrinsic contradictions of the capitalist system itself and the struggles of the proletariat, which challenged the foundations of social control exercised by capital. Mészáros (2002) argues that this crisis produced a movement of productive restructuring aimed at restoring the reproductive cycle of capital, now under the aegis of global finance.

In this new scenario, rigid production gave way to flexibility, giving rise to the thesis of flexible specialization, which fostered significant technological advances (Antunes, 2006). With the rise of *Toyotism* and adaptable corporate structures, new demands emerged for both professional and behavioral qualifications, distinct from those of the Taylorist-Fordist model. Educational institutions, adapting to this new reality, began to prioritize the training of flexible and multifunctional Workers, often at the expense of education that promotes critical thinking and autonomy (Kuenzer, 2016).

From this perspective, education, in addition to reproducing social inequalities, becomes a tool of control and domination, legitimizing the power structures that sustain capitalism. The logic of capital, in turn, uses education as a means of expanding its domain, reinforcing individuals' subordination to market imperatives. Therefore, understanding the interrelations between labor and education is fundamental for analyzing contemporary social dynamics (Vieira, 2023).

Regardless of the stage of capitalism, the owners of the means of production command not only the means, knowledge and Technologies, but also the labor force itself. Workers are exploited to generate surplus value for those who own the means of production, allowing the latter to concentrate wealth. The next section will explore the intersections between teaching work and technology, deepening the discussion on how these dimensions intertwine in the present reality.

Teaching work and its specificities in capitalist society

The teaching profession emerged in a secondary manner, initially exercised by members of the clergy and laypersons. According to Nóvoa (1995), its genesis is linked to religious congregations that became centers of instruction. The very term *professor* originates from Latin and, in its spiritual sense, refers to "one who professes." In the

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seventeenth and eighteenth centuries, educators associated with the Church developed technical knowledge and norms specific to the teaching profession, driven by the modern interest in childhood.

This origin reveals that the formation of norms and values guiding teaching practice was profoundly influenced by beliefs, moral attitudes, and religious traditions throughout history. From the outset, educators adopted an ethic and a normative system grounded in religious principles. Even when the act of teaching began to transform into a professional practice, abandoning the notion of vocation, the initial motivations did not disappear.

This is evident in Comenius's *Didactica Magna* (The Great Didactic), written in the seventeenth century, which, from a Baroque perspective, sought to reconcile religion and science while establishing the foundations of modern pedagogy. Comenius proposed an education that, beyond transmitting knowledge, would also form moral and ethical citizens. He advocated the importance of teaching the greatest number of people in the shortest possible time, a concept that, although born within an early capitalist framework, still serves as a reference for contemporary educational systems, particularly those incorporating technology.

The author outlined elements that continue to influence modern education systems, structured into different levels and models. The presence of a formal curriculum guiding pedagogical work reflects this legacy, as do methodologies that begin from the student's reality to explore broader contexts. This approach, including practices such as field studies, has contributed to the massification of education in various societies. The ideas of Comenius, therefore, are recognized as foundational references for contemporary pedagogy.

As school curricula expanded and pedagogical techniques became more sophisticated, education began to demand full dedication from teachers. Teaching, once a secondary activity, became a specialized field requiring time and energy. According to Nóvoa (1995), state intervention promoted the homogenization and hierarchization of the teaching body, unifying groups of lay and religious teachers under a single regulatory framework. This state regulation was fundamental in establishing teachers as a distinct professional category.

The second half of the nineteenth century was a period of ambiguity for the teaching profession. Educators came to be seen as workers occupying an intermediate position within the social structure: they did not belong to the bourgeoisie, yet they were not part of the working class. They were not intellectuals in the traditional sense, although their work demanded a solid body of knowledge. This ambivalence is highlighted by Apple (1989), who argues that teachers' contradictory location within the class structure positions them

ISSN 2238-8346
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alternately as members of the petty bourgeoisie and as part of the working class. Such duality reinforces the notion that teaching is not merely a vocation but a profession requiring recognition as such.

The professionalization of teaching, as outlined by Nóvoa (1995), requires a set of conditions that grant teachers professional status. These include full-time dedication to the activity, official licensing, specialized training, participation in professional associations, and mastery of the knowledge and techniques necessary for qualified practice. However, it is essential to recognize that, even with these characteristics, teaching work remains embedded within the contradictory logics of capital. Kuenzer and Caldas (2009) emphasize that, despite its specificities, teaching work is subject to the same dynamics that govern labor in general within capitalist society.

One of the research participants expressed this reality by stating: "Teaching work is full of contradictions. While we are here to shed light on various issues and discuss policies, we are also under the control of a system that restricts and limits us." (P8, 2022, verbal statement)

This statement exemplifies the tension between the humanizing dimension of teaching and the alienation it can produce. Teachers face productivity targets and bureaucratic demands that distance them from what could be a freer and more meaningful practice.

Kuenzer (2011) complements this discussion by asserting that the dimensions of use-value and exchange-value production are not opposed but intertwined in a dialectical relationship, in which work can be both a source of qualification and fulfillment, as well as of dehumanization and suffering. In the capitalist context, where the production of exchange value predominates, teaching work can generate reactions of resistance or resignation.

The capitalist crisis of the 1970s brought significant changes to teaching work, demanding a new worker profile: broad, flexible, and productive. As part of the wider world of labor, teaching has been directly affected by transformations in the productive sector and by labor restructuring, including the implementation of a "minimal" State and the adoption of flexible management models (Fidalgo, Oliveira & Fidalgo, 2013). In this new context, teachers became central figures in educational reforms, which entailed greater accountability for results and an intensification of their workload.

Lessard and Tardif (2005) suggest that what can be observed in teaching work is a process of increasing complexity, in which tasks become more multifaceted—especially through the mediation of technology. However, Garcia, Hypólito, and Vieira (2005) express concern about this interpretation, highlighting that this growing complexity may obscure

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essential political and social dimensions of teaching practice. For these authors, decision-making related to curriculum and educational goals has become less complex and more centralized, limiting teachers' autonomy.

This reduction in professional autonomy is linked to the process of teacher proletarianization, characterized by the loss of control over the means of production of their work and by the decline in both autonomy and professional value. Fidalgo (1993) points out that the hierarchization of school work and excessive regulation contribute to the deterioration of working conditions and the compression of wages. With the introduction of technology, this process has intensified: the restructuring of administrative tasks has increased teachers' responsibilities, as they now accumulate functions previously performed by support staff. sistema

The implementation of technological systems such as Fênix[4] at Universidade Estadual de Goiás (UEG) exemplifies this new dynamic. Teachers are required to record and manage their activities directly, increasing their workload and responsibility for potential errors. The teachers' testimonies reveal this reality: "UEG has the *Fênix* system that we must use to enter classes, attendance, grades, everything." (P9, 2022, verbal statement). P8 (2022) corroborates the previous statement: "I still keep my handwritten journal, but I enter into the system what needs to be entered. I have discipline and my own values. I don't need someone telling me when to do it." (P8, 2022, verbal statement)

What was once done by the administrative office is now performed by the teacher. In addition to expanding teachers' workload, this change makes them responsible for ensuring data accuracy and meeting deadlines.

Thus, the analysis of transformations in teaching work reveals a complex scenario: although official discourse presents technology as an element of empowerment and efficiency, in practice, it has functioned as a mechanism of control. The following section will deepen this discussion by examining the organization of teaching work mediated by technology, highlighting its implications for pedagogical practice and for teacher education.

[4] The Fênix Academic System is a tool used to support the Academic Offices of the Campuses and University Units of the *Universidade Estadual de Goiás (UEG)*, as well as the institution's overall management. For professors, it allows the registration of grades, attendance records, and course content, as well as the printing of entered data and the viewing of personal information and curriculum matrices, among other features. For students, it provides access to personal data, curriculum matrices, grades, attendance, and class schedules. *Source: UEG. Available at:* https://www.ueg.br/prg/conteudo/21617_login_fenix.

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The use of technology in teaching work

The distinction between different economic epochs is not based solely on the activities performed but, fundamentally, on the means of production employed (Marx, 2013). In this sense, technologies are instruments that make it possible to measure the development of human power and indicate the social conditions under which labor is carried out. Therefore, it is essential to study the technological resources used by teachers in their pedagogical practices. In contemporary times, the labor process encompasses production, organization, and management of the workforce, forming a complex and interrelated phenomenon (Corrêa & Saraiva, 2000).

This analysis, therefore, discusses the role of technologies as mediators of teaching work, considering the contradictions, ambiguities, and conflicts that permeate teachers' labor, as well as the heterogeneities that characterize the profession.

Although the use of technology in education is often perceived as a natural consequence of historical progress, such a perspective tends to obscure the weaknesses of the educational system, such as the lack of adequate infrastructure, interruptions in technology implementation programs, and insufficient teacher training.

Even though teachers recognize the difficulties involved in implementing technologies, many feel guilty for not being able to deliver pedagogical work that meets expectations regarding these tools. Placing technologies at the center of social development implies automatically associating them with educational improvement, as if they were autonomous systems capable of promoting social and cultural change independently (Peixoto, 2015). This perspective transfers responsibility for the failures in the use of these resources to teachers, labeling them as resistant to change, negligent, or irresponsible for not achieving the expected potential of such tools.

Furthermore, excessive focus on technology may conceal the political and economic interests of groups seeking to perpetuate a model aligned with social exclusion and the deepening of inequalities. By overvaluing the technological present and disregarding its historicity, the existing social order is maintained and legitimized. In the educational context, however, technological mediation depends on the quality of teachers' appropriation of these tools, which is directly conditioned by material circumstances and the symbolic meanings attributed to them.

The way teachers appropriate these resources is essential to their intentionality in the teaching-learning process. Such appropriation is not an isolated act but is shaped

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by the characteristics of the technological apparatus in use and by the symbolic processes that educators share during its application. One of the interviewees in this study stated:

> From a pedagogical perspective, it greatly expands our ability to include videos, music, and art. I've used it extensively to communicate with students. I send texts, I send videos beforehand, and they come to class having already read or watched the material, which leaves more time for discussion. It's definitely a tool that greatly supports pedagogical work, but intentionality is key (P1, 2022, verbal statement).

In turn, P2 noted that "technology itself is simple to use, the tool is simple. What is complex is the teaching-learning process, because it involves many variables." (P2, 2022, verbal statement)

The participants' statements demonstrate that technological apparatuses consist of an association between instruments and signs, whose understanding is fundamental to qualifying the analysis of human development. It is important to emphasize that the technological apparatus, in isolation, does not possess the potential to transform work or education. The meaning attributed to technology is as relevant as the tool itself, and the two are inseparable (Vieira, 2023).

The dissociation of these two dimensions — instrument and sign — tends to produce a technocentric perspective that disregards the symbolic nature of learning. This fragmentation contributes to processes of alienation, justifying a technological development oriented toward the maximization of profit and productivity, which can, in turn, be viewed as a form of exploitation of the labor force (Sousa, 2019).

The intersection between technology and education reveals a complex arena. Pedagogical practices are mediated by instruments that, while capable of enhancing learning, also expose mechanisms of control and alienation. A critical analysis of these relationships must go beyond technocentrism, seeking to understand how technologies can be used to promote more inclusive and emancipatory forms of education.

The challenge, therefore, lies in ensuring that these resources contribute to the autonomy of educators and students rather than perpetuating social inequalities and the capitalist logic that underpins their implementation. Addressing this issue requires continuous reflection on educational practices and the constant reassessment of the instruments used in the teaching-learning process.

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Technology as a tool of control

As the capitalist mode of production expands and the ideological superstructure that sustains it becomes consolidated, the exercise of control over both the labor process and the workers themselves becomes a naturalized feature of this system. According to Dagnino (2010), this type of surveillance is not new; it already existed in earlier modes of production, often associated with physical coercion. However, under capitalism, such coercion is transformed, detached from direct violence and exercised in subtler and more technical ways, frequently concealed beneath discourses emphasizing efficiency and productivity.

This phenomenon is significant because it implies that control is now materialized not only in interpersonal relations but also through technologies and management methods that regulate the work environment. Machines and managerial systems are not neutral; they represent a logical form of monitoring and rationalization that, under the capitalist logic, aims to maximize productivity at the expense of the worker's autonomy. This idea is corroborated by Sousa (2019), who argues that when technology is used to increase productivity, it ultimately dehumanizes the worker, reducing freedom and deepening the rationalization of labor.

The control exercised through technologies in educational environments reflects a concerning aspect of the management of teaching work. Teachers' testimonies attest to this reality, as one participant stated:

> The management system, while it offers practicality on one hand, also functions as a form of control. If you don't upload your plan or enter the lessons by the specified date and time, the system locks, and you can't make changes without authorization from the academic office. This is an even greater form of control than paper, for example (P2, 2022, verbal statement).

> Another teacher added:
> It really depends on who holds the reins. Some coordinators don't know how to mediate. They use this as a justification to control and punish. The current coordinator is very humane and always reminds us of deadlines and what needs to be done. But I've had coordinators who used this as a kind of 'pseudo power,' controlling and punishing teachers in various ways. So, that's technology, when it's in the hands of humane people who know how to mediate, it's good, but in the hands of mediocre people who want to control and exercise power, it becomes cruel and dangerous (P4, 2022, verbal statement).

Similar perceptions appear in other accounts, reinforcing how technological presence intensifies surveillance and narrows the limits of teachers' autonomy. One participant observed that "control is much greater. The more technology capital employs, the more interference there is over us, no doubt about it." (P5, 2022, verbal statement). Another added

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that "the rationalization of work now happens through technology," emphasizing that this logic is materialized in cameras, attendance logs, and rigid deadlines for completing grade reports (P7, 2022, verbal statement).

It is evident that technology has become a more intense instrument of control than traditional paper-based methods. In capitalist society, it loses its essence as a product of human creation and assumes a central role in organizing production, often prioritizing productivity and cost reduction. Among its observable effects are stricter deadlines and more rationalized work methods, directly impacting workers' daily routines. The growing use of monitoring Technologies, such as surveillance cameras and digital tracking systems, contributes to this process of control and labor management. Thus, the rationalization of work mediated by technology aligns with the logic of capital, which seeks not only productivity but also control over the labor force.

Consequently, the primary goal becomes profit maximization rather than facilitating the teacher's work. This logic of control translates into a dehumanization of labor, as discussed by Echalar (2021), who identifies educational technologies as instruments of surveillance and evaluation that transform teaching practice into a field of constant monitoring.

This understanding also emerges in our empirical data. One of the interviewed teachers stated:

> This relationship between capital and labor—capital's exploitation of labor—only tends to worsen, whether through control or through the exclusion of those who don't use technologies. That's nothing new to me; I have no doubt about it. When we used manual gradebooks, teachers had much more autonomy in managing their classroom work. Now, with digital systems, you have a set day and time to submit everything (P5, 2022, verbal statement).

In this way, workers' freedom becomes increasingly restricted as technologies advance. The autonomy that once characterized teaching practice, such as the use of manual gradebooks, is replaced by digital systems that impose rigid deadlines and formats. This reflects the capitalist logic that prioritizes productivity over creativity and critical reflection.

As technologies become an integral part of the educational environment, the teacher's profile also changes. The teacher is no longer merely a mediator of knowledge but also an executor of tasks who must constantly adapt to the new demands imposed by technology. This translates into expectations that teachers develop skills beyond curricular contente, such as the ability to "learn how to learn" and to adapt to new tools and methods (Kuenzer, 2016).

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The intersection between technology and teaching work reveals a complex and multifaceted panorama that demands continuous critical analysis. While digital resources can enrich the educational process, they also have the potential to reproduce control relations that dehumanize workers. The challenge, therefore, lies in finding ways to use these technologies to promote autonomy and the holistic development of educators, enabling them to become active agents in the transformation of education, and, consequently, of society itself.

The struggle for a pedagogy that values creativity and critical thought while challenging the structures of control imposed by capital is both urgent and necessary to ensure that education does not become merely another cog in the capitalist machine but remains a space for emancipation and social transformation.

This research contributes to the debate on public policies by highlighting the need for teacher education programs that critically address technology and working conditions in public institutions. It is recommended that both initial and continuing teacher education programs foster the ethical, reflective, and emancipatory use of technological resources, strengthening teachers' autonomy and preventing their instrumentalization. In the field of educational policy, it is crucial to establish guidelines that recognize the formative role of teaching work and ensure adequate material conditions for the exercise of a genuinely humanizing practice.

Conclusions

The intensification of technological use since the 1970s has brought with it a form of human development marked by technical rationality. Instrumentalization has become the focus of the educational process, contributing to an uncritical use of the resources produced by society. In this context, technicist pedagogy emerged as a response to the new organization of the capitalist mode of production, shaping individuals who become instruments for the production of wealth and the accumulation of capital.

Technology, as a historical product, reflects human experience and must be appropriated and employed within specific social practices. It is important to recognize that there are no neutral technologies. Their operations and meanings are always influenced by social and symbolic contexts. Social inequality, in turn, exacerbates disparities in access to and appropriation of these resources. To prevent technology from becoming merely an instrument of domination and control, it is essential to transcend its technical functionalities and integrate

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theoretical reflection with concrete practice, establishing a dialogue between the abstract and the concrete that enables the effective transformation of reality.

In the educational sphere, the way teachers appropriate technology is fundamental, as it depends both on the quality of available resources and on the intentions guiding their use. Teacher education must go beyond technical mastery, enabling the development of a critical consciousness regarding the social and structural conditions in which teachers operate. Understanding educational problems as part of a complex phenomenon, rooted in the contradictions of capitalismo, prevents the individualization of difficulties and the exclusive attribution of blame to teachers.

Thus, when reflecting on the triad of education, labor, and technology, it is essential to consider the modes of production and living conditions that shape this relationship. A holistic and humanizing education is necessary for teachers to exercise autonomy in their work and to understand their role within the broader social context. The analysis presented here highlights the urgency of a solid scientific foundation that moves beyond superficial approaches, allowing educational practice to be grounded in a profound understanding of reality.

Finally, the quality of education should not be measured solely by the quantity of technological resources available or by teachers' ability to use them. Instead, an education of excellence must be grounded in human and emancipatory formation, with teaching work placed at its center. For meaningful change to occur, it is imperative to invest in teachers' working conditions, ensuring fair salaries, opportunities for professional development, and time for collaborative reflection within educational institutions.

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