From the use of technologies to the phenomenon of the Platformisation of Education: a critical perspective on the analysis of teaching work[1]

Dos usos das tecnologias ao fenômeno de Plataformização da Educação:
uma perspectiva crítica de análise do trabalho docente

De los usos de las tecnologías al fenómeno de la Plataformización de la Educación:
una perspectiva crítica de análisis del trabajo docente

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Abstract: The objective of this study is to present an overview, from a critical-dialectical perspective, of the process of platformisation in the educational field and its impacts on labour within a market-oriented framework aligned with the interests of capital. The methodology is based on a theoretical-conceptual study of a critical-dialectical nature and bibliographical orientation, employing a literature review for data collection and analysis of the phenomenon. Epistemologically, the concepts and references are organised according to the principles of Historical-Dialectical Materialism. The findings indicate that platformisation materialises under the premise of technological development as a necessity, with its massification legitimised as an educational policy aimed at the integration of digital technologies. It is observed that platformisation intensifies the exploitation of teachers' labour, reducing intellectual autonomy and producing overload through uninterrupted work demands. The study concludes that this phenomenon operates in the service of the commodification of education, sustained by large oligopolies as mechanisms of domination and control.
Keywords: Education; Platformisation; Digital Technologies; Teaching work.

Resumo: O objetivo deste estudo é apresentar um panorama, na concepção crítico-dialética, da plataformização no campo educacional e seus impactos para o trabalho em um viés mercadológico, afeito aos interesses do capital. A metodologia se baseia em estudo teórico-conceitual, de perspectiva crítico-dialética e de natureza bibliográfica, utilizando a revisão de literatura para coleta de dados e análise do fenômeno. Epistemologicamente, os conceitos e as referências estão organizados a partir dos pressupostos do Materialismo Histórico-Dialético.

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Dos resultados, tem-se que a plataformização se materializa sob a ideia de necessidade de desenvolvimento tecnológico e sua massificação como produto legitimado em políticas educacionais de inserção de tecnologias digitais. Constata-se o agravamento da exploração do trabalho docente no cenário de plataformização, com a redução de autonomia intelectual e sobrecarga gerada pelo trabalho ininterrupto. Conclui-se que esse fenômeno está a serviço da mercantilização da educação, com a presença de grandes oligopólios como mecanismo de dominação e controle.
Palavras-chave*: Educação; Plataformização; Tecnologias Digitais; Trabalho docente.

Resumen: El objetivo de este estudio es presentar un panorama, en la concepción dialéctico-crítica, de la plataformización en el campo educativo y sus implicaciones para el trabajo en un sesgo mercadológico, habituado a los intereses del capital. La metodología se fundamenta en un estudio teórico-conceptual, de perspectiva crítico-dialéctica y de carácter bibliográfico, utilizando la revisión de literatura para la recolección de datos y el análisis del fenómeno. Epistemológicamente, los conceptos y las referencias se organizan a partir de los supuestos del Materialismo Histórico-Dialéctico. Los resultados muestran que la plataformización se materializa bajo la idea de necesidad del desarrollo tecnológico y su masificación como producto legitimado en políticas educativas de inserción de tecnologías digitales. Se constata el agravamiento de la explotación del trabajo docente en el escenario de plataformización, con la reducción de la autonomía intelectual y la sobrecarga derivada del trabajo ininterrumpido. Se concluye que este fenómeno está al servicio de la mercantilización de la educación, con la presencia de grandes oligopolios como mecanismo de dominación y control.
Palabras clave: Educación; Plataformización; Tecnologías Digitales; Trabajo docente.

Introduction

The phenomenon of platformisation in the educational field had its advent in the 1990s, within the context of the implementation of neoliberal policies and, later, the proliferation of the internet. In the contemporary context of late capitalism, platformisation conceals the movement of expansion and domination of Big Tech; large technology corporations that, through their platforms, have access to a vast amount of data, used to support the new models of the financialisation of education. In this scenario, the educational field, as a segment of commodified society, has also aroused the interest of major corporations, which are advancing their business operations in the sector. In the educational field, through a fetishised and reified discourse, these platforms are commercialised as instruments bearing convenience, innovation, and modernisation; in short, as updates to the work and activities of teachers and students, but never as mechanisms of control and surveillance of educational processes, which, in fact, they are. In this vein, platforms emerge as technological artefacts of the process of

social digitalisation, yet without unveiling the contradictions and impacts they exert upon education, especially upon teaching labour.[5]

During the COVID-19 pandemic, the need for social isolation and the impediment of face-to-face classes opened a "window of opportunity" for technology companies, thereby leading to the advance of Big Tech and EdTechs, which entered the educational scene with even greater commercial and political strength (Souza; Evangelista, 2020). Amidst a celebratory façade and exaggerated solutionism, based on the idea of technology as a panacea for educational problems, new forms of control, surveillance, exploitation, and expropriation of workers' rights materialise. Undoubtedly, the Covid-19 pandemic, more than a window of opportunity, aggravated the context of social inequalities and injustices; however, in the educational field, it markedly increased the precarisation of teaching labour. Moreover, it caused major impacts and losses with regard to students' learning. Beyond learning environments, the precarisation of work and the rise in informality are also felt across society as a whole, as evidenced by the record number of workers without formal employment contracts in 2022.

In light of the above, and taking as principles the non-existence of neutrality in technology and its technocentric position in society, we intend to address, aligning with dialectical critique, the contradictions that are present in the use of digital technologies — including those related to digital platforms — overcoming any extreme positions, yet without failing to expose their interests within the educational field. From this context emerges the central question of the present study: what are the contradictions inherent to the phenomenon of platformisation in the educational sphere, and what are their implications for the labour and praxis of teaching? This question guides our work, which aims to present, from a critical-dialectical perspective, an overview of platformisation in the educational field and its impacts on labour, viewed through a market-oriented lens aligned with the interests of capital.

Methodology

The methodology employed in this research is grounded in a theoretical-conceptual study of a bibliographical nature, using a literature review for the collection of data and for the analysis of the phenomenon of platformisation in education. This review constituted the

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[5] Teaching work is understood here as non-material work. As a result of educational work, there emerges a form of knowledge that arises from the learning process, as the product of educational work (Saviani, 2021).

theoretical core of the study and was carried out from a critical-dialectical perspective, based on the assumptions of Historical-Dialectical Materialism.

For the development of the research, the constitution of the bibliographic corpus considered scientific productions that address the use of technologies, with an emphasis on analyses of platformisation and its developments within the educational field. Priority was given to works that critically articulate the incorporation of digital platforms into the dynamics of contemporary capitalism, the reconfiguration of teaching labour, and the market logic that permeates the educational field. The bibliographic survey was carried out in databases recognised and consolidated within the field of Education, such as *Biblioteca Digital Brasileira de Teses e Dissertações* (BDTD) and the Scientific Electronic Library Online (SciELO), in order to gather national and Portuguese-language works that could substantially contribute to the construction of the panorama. The temporal scope comprised publications between 2010 and 2025, a period in which discussions on platformisation and the incorporation of digital technologies into the educational field have intensified.

As selection criteria, the following were adopted: the theoretical-methodological relevance of the works for the debate on the relationship between Technologies and Education; their connection with critical and dialectical perspectives; and the contemporaneity and epistemological pertinence of the works for understanding the phenomenon of platformisation in education in its totality. Works of a merely descriptive nature regarding the incorporation of technologies into the educational field were excluded, as well as those that deliberately deal only with their instrumental aspect, without problematising their historical, social, and economic determinations. Also excluded were works limited to empirical analyses of technological performance without establishing a dialogue with critical perspectives on teaching labour and the commodification of education.

This study aligns with research addressing the relationship between Education and Technologies by problematising the use of platforms within the educational field, highlighting the contradictions present in this contemporary phenomenon. With this purpose, the text was structured into two parts: the first addresses platformisation in education in broader terms, contextualising the phenomenon; and the second emphasises teaching labour and the impacts caused by the insertion of technological artefacts in education.

From the Use of Technologies to the Platformisation of Education

The transformations undergone by the world of labour from the context of productive restructuring and flexible accumulation (Kuenzer, 2017) still in the 1970s — later updated in

algorithmic dimensions through the "primitive accumulation of data" (Lippold; Faustino, 2022, p. 1) — gain increased relevance with the advent of digital technologies, which also affect the school environment and, above all, on teaching labour. These are disastrous impacts, materialised in a series of changes that have produced unemployment, underemployment, suffering, illness, and, regrettably, death, as seen in the irreparable loss of teachers in states such as Paraná and São Paulo. It is a process of dismantling that directly affects the very essence of education, wounding the intellectual and autonomous character of teaching, with harmful effects on students' formation, a phenomenon known as the platformisation of education. This phenomenon has occupied a central place in educational policy, through school management, causing major impacts on teaching labour, which diverge from its apparent potentialities, those that capital insists on emphasising: access to information, communication, facilitation, among others.

> The term 'Platformisation' or 'platform society' describes the way in which human life and its economic and social interactions are influenced by a global ecosystem of online digital platforms. These platforms operate with the support of AI algorithms that use vast datasets (Big Data) to shape experiences and interactions (CGI.br, 2022, p. 18).

In this wave of enthusiasm and seduction, contemporary digital technologies, embodied in platforms, networks, and artificial intelligences, appear in the educational field as excessively miraculous solutions. However, publications that question this judgement are beginning to multiply, such as the United Nations Educational, Scientific, and Cultural Organisation (UNESCO, 2023), which indicates that there is no evidence of improvement in learning outcomes through the use of technologies.

> In Peru, when more than one million laptops were distributed without being incorporated into pedagogy, learning did not improve. In the United States, an analysis of more than two million students indicated that learning gaps widened when instruction was delivered exclusively remotely (UNESCO, 2023, p. 7).

The existing evidence describes a true pedagogical regression, especially in the development of critical thinking, revealing the significant billion-dollar sums invested by state and municipal education networks in contracts, cooperation agreements, and public-private partnerships with oligopolies (Big Tech) and digital companies (EdTech). Such oligopolies and companies sell two "wonders" to administrators: the de-intellectualisation of the teacher and the intensification of control over teachers, from which derive the precarisation of teaching labour and teachers' health deterioration. According to Sousa and Peixoto (2022, p. 65), "the implementation of technology in schools is directly linked to these aims".

The idea that technological artefacts continually seek to present themselves to schools as educational innovations intended to improve learning is not new: the same happened with television and the videocassette; the same happens with contemporary technologies. However, Neto (2020), in his critique, analyses the incorporation of technologies into the school environment, particularly for their inevitable impacts on teaching labour, highlighting significant limitations in reductionist, determinist, and instrumental conceptions centred on technocentrism. For the author, a critical epistemological approach to technology is necessary, through which teaching activity, intentional and systematised, has the potential to re-signify discourses on teachers' labour in light of the political-economic conditions that technologies assume.

As observed by Lima Filho, Tono, and Oliveira (2014, p. 21), when it comes to the incorporation of technologies in schools based on technical-operational capacity, this "[...] does not guarantee a change in teaching work capable of enhancing meaningful student learning". For these authors, the market-oriented and operational use of technologies does not contribute to learning. This use needs to be conceived with a view to *omnilateral* human development; therefore, it is not only related to responsible and ethical use, but also centred on a critical-dialectical dimension of technologies. In this sense, materialist investigation enables us to conceive of technologies in their historical and social aspects, that is, as productions essentially resulting from technique, as historical products, notwithstanding their role in meeting human survival needs.

In the realm of teaching work, with a view to addressing complex educational problems, the discourse surrounding the potential of technologies tends to propagate them repeatedly with enthusiasm, fascination, and excessive appreciation of technological apparatuses. In the educational sphere, the fetish of technology manifests itself in the belief that the technological artefact, by itself, is capable of transforming pedagogical practices and improving the quality of education, disregarding the premise that technology is not neutral (Lima Filho, 2010), and, of course, overlooking what lies behind all technological machinery: the pursuit of surplus value (Marx, 2013). From this dialectical perspective, grounded in the critique of the neutrality and in the fetishised character of technology, overcoming the idea of the merely instrumental use of technology is understood as fundamental — in order to transcend technological dependence and promote a critical awareness in concrete terms, regarding its hegemonic logic (Tono; Lima Filho, 2015).

According to Ferreira (2015), the critical approach to fetishised conceptions occurs throughout the historical process of humanisation of subjects, "[...] which translates into the appropriation of the most elaborate developments of the human species, or, in other words,

into a process of overcoming the condition of alienation"[6] (Ferreira, 2015, p. 91). The celebratory and exalting movements surrounding technology as a saviour reduce themselves to an illusory and superficial configuration of operationalisation, lacking a deep historical and dialectical analysis through which the capitalist interests surrounding technologies are revealed. Silva (2022, p. 785) reinforces this analysis by stating that,

> From a dialectical perspective, we affirm that we must avoid the celebration of educational technology as if it were intrinsically an instrument of progress, synonymous with the overcoming of difficulties related to the teaching and learning process. It is not a matter of demonising it, but of situating it within specific historical contexts.

The challenge lies in overcoming elements that belong to the field of idealism, for instance, technological infrastructure, the quality and quantity of artefacts (tools/resources), the availability or not of computerised classrooms, qualitative access to the internet, and even the instrumental training of teachers for the use and appropriation of technologies, moving forward in the discussion about structural conditions that position the boundaries between human beings and technologies. With regard to knowledge, what is brought into discussion are the impacts of technology on the *omnilateral* human development of individuals, in view of the limitations implicitly caused by automation and the notable absence of critical theoretical foundations for the use of technological artefacts (Tono; Lima Filho, 2015; Neto, 2020).

A conception of the world shaped by the postmodern agenda contributes to relationships and education being directed towards homogenisation and the emptying of knowledge (Lima Filho, 2010). This inevitably results in the disregard of a historical and social approach to content for students and assigns greater prominence to the mere instrumental operationalisation of technologies (Tono; Lima Filho, 2015). Dutra and Mueller (2024) highlight, from a critical perspective, that digital technologies, far from promoting exclusively technical advances, also reinforce exclusionary and unequal dynamics, since digital technologies, by reproducing power structures, deepen social inequalities within the school environment.

Contextualising the movements of technology in the educational field, there is solid representation, with several indicators of the fragmentation of schooling and of the precarisation and deterioration of teaching labour, such as: the implementation of technologies without adequate pedagogical planning; the advance of platformisation in education; and the

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[6] The term alienation is used here in the sense given by Marx. "An action through which an individual, a group, an institution, or a society becomes (or remains) alien, estranged, or, in short, alienated from the results or products of their own activity (and from the activity itself), and/or from the nature in which they live, and/or from other human beings and — beyond and through all this — also from themselves (from their historically constituted human possibilities)" (Bottomore, 1988, pp. 18–19).

replacement of teachers by platforms and artificial intelligences of various kinds. The educational policies recently approved and implemented reinforce these logics of serving exclusively the demands of capital, under the discourse of digital transformation in education, thus disregarding pedagogical aspects (Lima; Peroni; Pires, 2024).

As analysed by Lima, Peroni and Pires (2024), *Política de Inovação Educação Conectada* (PIEC, Connected Education Innovation Policy) from 2021, the supplement to *Base Nacional Comum Curricular* (BNCC, National Common Curricular Base) regarding the standards for *Computação na Educação Básica* (Computing in Basic Education) from 2022, *Política Nacional de Educação Digital* (PNED, National Digital Education Policy), and *Estratégia Nacional Escolas Conectadas* (ENEC, National Connected Schools Strategy), both from 2023, are examples of educational policies that emerged with a salvationist discourse in education, but which, in essence, have expanded the process of privatisation of education through digital platforms and, above all, intensified teaching labour. That is, they promise to guarantee internet access and to encourage the pedagogical use of digital technologies, yet they accentuate market dynamics and make teaching work increasingly vulnerable to the interests of capital. In this complex and contradictory scenario, what materialises is "[...] the production of commodities and, thus, it requires the minimum human and material resources necessary to ensure productivity, within a limited timeframe" (Tono; Lima Filho, 2015, p. 194).

The massification of discourse surrounding the need for technology in the educational field is also a product of teacher training policies, curricula, and teaching modalities that, in their complexity, have historically concealed the interests of businesspeople and of national and international organisations in the profits generated by the technological paraphernalia industry. As a subversive counterpoint to the advance of digitalisation in the educational field, recurrent and theoretically robust critiques are necessary to reveal the relations of domination and exploitation of subjects, which are also structured alongside technological development (Dagnino, 2010). Some authors, from an idealist perspective, have suggested that the transformation of education will occur through public policies that do not adopt such logic, but rather encourage the development of knowledge of a humanist nature. Could this truly be a possibility?

> In this sense, our broader conclusion is that the advocacy of using technologies in education for the development of a "critical", "humanising", "emancipatory education", and various other adjectives, finds no support in objective reality. What determines the scope of limits and possibilities for the exercise and understanding of each dimension that constitutes human life is always totality and labour. In the case of the capitalist society in which we still live, it is a social totality dominated by capital and founded on wage labour and the extraction of surplus value (Rossi; Rossi, 2018, p. 13).

In pursuit of the capitalist obligation to confer legitimacy on technology, intellectual production in the field of education and technology has hegemonically generated emerging propositions that are disconnected from objective and historical reality, in order to justify its presence within teaching, idealising the role of education and assigning teachers a secondary position in the teaching-learning process. There is an evident and strategic attempt to use the technocrats' discourse of innovation as a means of consolidating their position within the educational sphere, with the State as an accomplice, resulting in devastating impacts on human formation. This discourse is amplified by mercantilists, particularly within private companies that treat Education as economically exploitable and profitable capital for the generation of financial gain, to the detriment of learning, knowledge, and critical thinking (Soares; Soares, 2018). According to Sousa and Peixoto (2022), the importance attributed to the implementation and development of technology in education reveals conformity to the interests of capital, while the business sector's interest in education indicates the importance of education in driving socioeconomic advancement.

What becomes evident is a genuinely concerning scenario, precisely because market pressures materialise in the primary need to adapt individuals instantly to technologies, in line with a utilitarian, pragmatist, and facilitative logic, aimed at preventing them from becoming obsolete or outdated. In the context of teaching labour, the imposition of technologies on education represents an opposition to the ideal of *omnilateral* human formation, in which critical reflection on productive forces and social relations of production should be prioritised, problematised, and contextualised. As pointed out by Seki (2024, pp. 329–330), paradoxically, the discourse on the technological necessity in the education field tends to rely on fragile foundations, to present itself with an appearance of neutrality, and to feature as a supposed solution to the chronic problems of education:

> This not only exposes the potential risk that such solutions may prove entirely ineffective, but also the danger that the social meaning of schooling may be transformed without reflection or public debate concerning the orientations embedded within the various technological devices, tools, programmes, and platforms introduced into the educational sphere.

Regarding platformisation itself, our research has revealed at least three dimensions that warrant close attention: the deintellectualisation, intensification, and precarisation of teachers' labour. In the first, teaching has been reduced to the application of pre-formatted content, through platforms that provide ready-made materials with no room for pedagogical intellectuality, and reducing the teacher to a mere implementer (of slides, of the BNCC, or of platforms in general). In the second, platforms have invaded educational spaces via management mechanisms; to monitor teachers' actions, overload them with bureaucratic work

and drain the educational substance of their labour, besides surveilling what is learned, the time spent online, and, as if that were not enough, seizing data as algorithmic commodities to be financialised by capitalists. These platforms enter schools through alliances with the private sector, which integrate educational programmes and pedagogical content under the guise of innovation and a techno-solutionist vision (Lima; Peroni; Pires, 2024). In the third dimension, the precarisation of teaching is intensified through unattainable targets and evaluations, teacher undervaluation, worsening of working conditions, the appropriation of teachers' subjectivities, and growing psychological suffering and health deterioration

This latter dimension has become the focus of a series of studies seeking to denounce rates of anxiety, depression, leave of absence requests, and, lately, tragically, cases of death. The violence with which platformisation policies have penetrated public school networks generates profoundly dehumanising impacts. The discourse of technological innovation has disqualified the teaching profession and severely compromised public education to the point where a potential collapse in teacher intellectual engagement is being considered in the coming years. The deintellectualisation of teachers is a movement aimed at shaping a new professional profile: technically competent yet politically harmless (Shiroma, 2003). The construction of this profile gains strength through the phenomenon of platformisation, which contributes to the salvationist narrative of technology in education, conditioning the teacher to act as a subordinate in the teaching-learning process. The marketisation of education, guided by targets, efficiency, assessment, and results, strips the teacher of their autonomy, transforming them into a reproducer of practices serving the interests of capital.

It is, therefore, urgent to critically understand the political project underlying platformisation: one that subjects teaching, schools, curricula, and teacher training to the condition of technical subordination. It is time to reclaim the critique of technology as a means to criticise capital and its delusions.

Impacts of Technology on Teaching/Teachers' Work

To understand platformisation in the context of Education, it is necessary to understand that it does not constitute an innovation, even though it has been increasingly gaining ground across different social spheres. Berrío-Zapata, Rodrigues, and Gomes (2019, p. 20) emphatically argue that "the history of platforms begins with the arrival of the Internet in the 1990s. Information Systems (IS) operated on ONE networks and desktops, characterised by a closed and modular architecture". However, the studies on the phenomenon of platformisation — also referred to as Surveillance Capitalism (Zuboff, 2021), Platform

Society (Van Dijck, 2013), or Platformisation of Work (Grohmann, 2020) — and on its effects on humanity are relatively recent, particularly following the pandemic, which opened a "window of opportunity for the expansion of new market niches" (Barbosa; Alves, 2023, p. 1). Although these terms differ, they all refer to the same phenomenon, that is, the digital transformation unfolding on a global scale, which engages with the accelerated techno-scientific advances of capitalism, especially within education (Saura *et al.*, 2024).

Platforms such as Google, Amazon, streaming services (Netflix, HBO, Globoplay, etc.), food delivery applications like iFood, and mobility platforms such as Uber have become part of the everyday lives of most internet users. Therefore, it is crucial to pay attention to the relationships among work, society, and technology within this phenomenon. The debates and controversies surrounding the topic are frequent, particularly regarding its consequences for the world of work (exploitation, precarisation, control, loss of autonomy, and expropriation, among others), which are often confined to specialists, when they infact affect and concern the lives of all of us.

The negative outcomes are not inherent to platform work, and it is possible to reconfigure this form of labour to improve workers' conditions (Berg *et al.*, 2018). Grohmann (2020) identifies three main movements for constructing alternatives to platform-mediated work in the contemporary context: (a) the regulation of work on digital platforms; (b) the collective organisation of workers; and (c) the creation of other logics of work organisation, such as platform cooperativism. These would be attempts to mitigate the damage caused by platform capitalism to workers. In the educational context, such initiatives may take place through collective organisation of the category, via unions and associations, as forms of resistance to the exploitation and expropriation of teaching work, as well as through the use of public platforms aligned with the interests of the working class. All this expansion of platforms in global society, across different fields, and the understanding of their concept in an uncritical, superficial, and tangential manner, also reaches the educational field. Schools are not removed from these changes in the global landscape, and it is up to them to (con)form this new working class (Previtali; Fagiani, 2020).

Regarding education, the debates on the use of technologies, particularly the platformisation of teachers' work that has occurred in recent years, encompass issues ranging from the loss of autonomy to the overload generated by uninterrupted work, since "[...] remote work can be carried out totally or partially at a distance, anywhere, provided there is a computer or mobile phone and an internet connection" (Previtali; Fagiani, 2020, pp. 217–218). With the emergence of applications such as WhatsApp, it has become even more difficult for teachers to separate moments of rest from those of work. In her analysis, Laureano (2024,

p. 49) presents research conducted by *Sindicato dos Trabalhadores em Educação na Rede Pública de Ensino do Estado de Santa Catarina* (Sinte-SC, Union of Education Workers in the Public School Network of the State of Santa Catarina), which shows that,

> [t]he loss of labour rights is another cause for concern. Working hours have become intensified and extended, blurring the boundaries between public and private life, as remote work invades teachers' personal mobile phones, computers, and internet connections. During this period of adaptation and adjustment, the so-called "new normal" emerged, accompanied by the prospect of returning to classes through the adoption of hybrid teaching.

The demand for immediate responses forces many teachers to feel obliged to reply to families and other professionals even outside working hours. "Technology is only one of the factors that expand control over the pedagogical process and precarise the conditions of teacher education and professional practice" (Sousa; Peixoto, 2022, p. 68). The entry of these digitalised systems had already become part of teachers' work even before the COVID-19 pandemic[7]. However, that period was crucial for the emergence of platformisation and for the widespread use of digital tools as a means to continue pedagogical work in schools. "In the context of crisis, aggravated by the pandemic, we observed an acceleration in the implementation of proprietary platforms and services from large commercial software companies, through contracts or agreements with limited transparency" (Pretto *et al.*, 2021, p. 224).

The precarisation of pedagogical work deepens amid excessive data collection and the social and technological inequality gap that prevents many students from accessing the internet and digital tools. In 2020, within the public school network, approximately 26% of students taking online classes lacked internet access (Chagas, 2020). Both through school management systems, which automate, manage, and control eenrollments transfers, and students' school lives, and through platforms created by large corporations that claim to "facilitate" teachers' work, users' data are captured and left at the mercy of Big Tech once in possession of this information, companies rely on so-called educational innovations and offer practices, methods, technologies, and/or approaches that meet teachers' multiple needs and duties.

Platformisation, "[…] whose utilisation by users produces valuable data, becoming the target of collection, processing, and dissemination of information by proprietary companies" (Rodrigues, 2020, pp. 9–10), poses further risks to education. Work overload, competitiveness,

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[7] "Since the 1980s, some research groups have discussed the relationship between education, communication, and technologies by monitoring projects and public policies aimed at incorporating technologies and media into schools and pedagogical practices in Brazil" (Pretto *et al.*, 2021, p. 223).

physical and mental control of teachers, performativity, the lack of respect to professional autonomy, and superficial training are some of these risks (Sena, 2024). We do not intend to explore in detail each of the risks mentioned here; however, some will be made explicit, particularly those related to workload, autonomy, and the control over teachers' labour.

Regarding work overload, the incorporation of digital platforms requires additional working hours from teachers, extending beyond the regular workday and forcing them to use their rest time due to the increase and intensification of tasks. Teaching demands are no longer limited to the classroom, since they increase when teachers need to use these platforms to maintain communication and information flow with families and occasionally with administrators and colleagues (Bortolazzo; Feijó, 2024). This uninterrupted workflow compromises both the physical and mental health of education professionals, due to the exhaustion and the expectation of constant availability. "The peak of this trend can be found in 'online schools', where a teacher may attend to as many as three hundred students via chat, expanding up to tenfold the usual ratio of one teacher to thirty students in a traditional classroom" (Freitas, 2018, p. 109).

Another major concern is the loss of autonomy provoked by these tools. A significant number of platforms provide ready-made lessons, assessment templates, and predesigned presentation slides. Unfortunately, many teachers, perhaps naïvely, believe in the illusion of task facilitation and, without realising, become part of a neoliberal project culminating in the implementation of external standardised assessments. Freitas (2013) argues that tests have their place within education; the major issue is that they have been taken over by the market. The application of external tests/examinations constitutes form of control over teachers' work and diminishes their autonomy, as the entire teaching and learning process seems to be oriented toward large-scale assessments (Sousa; Peixoto, 2022), although these are not the only forms of control that these preffessionals might face.

According to Freitas (2018), the phenomenon of platformisation represents the new face of neo-technicism, which positions itself as personalised online learning platforms, in a process that expropriates the living labour of teachers and transforms it into dead labour within the platforms. The use of such platforms allows corporations (capital) to more closely monitor what is taught in classrooms and how lessons are planned, as "[…] through the platforms, the activities and behaviours of workers are meticulously monitored and evaluated, and payment becomes increasingly linked exclusively to productivity rather than working time" (Gonsales, 2020, p. 126).

These tools also encourage the use of lesson plans proposed by neo-technicist and instrumental policies, from the moment schools rely on pre-prepared teaching materials and ready-made lessons. "As a de-skilled and increasingly technology-dependent worker, the

teaching profession becomes more expendable and turns into an appendage of interactive platforms" (Freitas, 2018, pp. 108–109). It is important to emphasise that platformisation presents significant risks to the teaching profession, such as the loss of autonomy, increased control, exploitation, and the expropriation of labour rights. What we witness in this era of Industry 4.0 is "[...] a new step in the real subsumption of labour to capital, which, in the present times, is also affecting workers with higher education, such as basic education teachers" (Previtali; Fagiani, 2020, p. 235).

In contrast to reductionist approaches that oscillate between absolute rejection and naïve idealisation of technologies, Gonzalez (2024) calls attention to the limits of polarised perspectives and underscores the need to analyse the ideological mediations of capitalism: both technophobia, in which technologies are rejected and seen as entirely bad, and technophilia, which views technology as a miraculous panacea, are refuted. It is necessary to understand that the use of technology in education serves the interests of capital and, consequently, neoliberal thinking subordinates teacher education and practice to a market-driven logic, reducing teachers to mere executors. According to Sousa and Peixoto (2022), the expansion of remote education demonstrates compliance with bourgeois interests. The expansion of remote education, streamlined, superficial, and mostly private, is part of the strategy to weaken teacher training and, consequently, the education of working-class children. Thus, teacher education no longer aligns with the interests of teachers and students but rather with the maintenance of the prevailing system.

It is necessary to move beyond a naïve outlook and toward a critical and resistant consciousness regarding technological tools that invade schools under the false promise of salvation, when in fact they merely condition and control teachers' work in an instrumental and deterministic manner, stripping them of agency and autonomy. Beyond surveillance and the expropriation of teachers' rights, the impacts have a direct effect on the health of education workers. Work overload and pressure to meet performance goals have significantly contributed to health deterioration and even recent deaths of teachers during working hours. When they do not kill or cause sickness, these processes at least seize teachers' subjectivities, reinforcing the current capitalist state of affairs.

Conclusions

The purpose of this study was to present an overview, from a critical-dialectical perspective, of platformisation in education and its impacts on teaching work within a market-oriented framework aligned with the interests of capital. Based on a theoretical and conceptual

approach grounded in the principles of Historical-Dialectical Materialism, it was found that platformisation is a phenomenon that has intensified with the rise of neoliberal policies and the expansion of Big Tech, directly affecting the educational field. It thus constitutes a process that substantially deepens the commodification of education and the subordination of schools to the logic of capital.

Regarding the impacts of platformisation in the educational field, it was found that the precarisation of teaching work has deepened, materialised in teacher overload, uninterrupted work, and the constant loss of autonomy. Furthermore, from the broader perspective of society as a whole, it was observed that social and technological inequalities have intensified amid precarious conditions of access to and use of technology. Paradoxically, the discourses of innovation and technological modernisation conceal the market-driven interests that maintain the capitalist society.

The discourse of the advent of platformisation in education, under the banner of facilitation and work reduction, is deconstructed and shown to be self-contradictory, given that the actual outcome of this phenomenon is the expansion and intensification of teachers' workloads, leaving them at the mercy of the platforms. The health deterioration, recent deaths, and the appropriation of teachers' subjectivities reinforce that the political commitment of platformisation aligns with the interests of the bourgeois class, aimed at profit, seeking to transform the school into a business and, consequently, to precarise teachers' labour.

It is necessary to reverse this logic. There is no need to act as Luddites and destroy the machines in a technophobic reaction; however, the use of technology must serve the working class. We hereby emphasise the crucial importance of collective organisation among education workers, through unions and other forms of mobilisation, as a means of fighting and resistance. The resistance movement is a fundamental condition for confronting the growing precarisation imposed by capital and for resisting the subordination of education to market logic.

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