IMPACTS OF PLATFORMIZATION AND UBERIZATION ON TEACHER TRAINING AND WORK

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Abstract: This text aims to characterize the impacts of the platformization and uberization of education on teacher training and work in the context of digital neotechnicism. The results show that the impacts include increased informality, the search for alternative sources of income, the replacement of face-to-face activities with virtual activities, the establishment of management by results and goals with a view to curricular standardization and teacher and student control.
Keywords: Platformization; Uberization; Teacher Training.

IMPACTOS DA PLATAFORMIZAÇÃO E UBERIZAÇÃO PARA A FORMAÇÃO E O TRABALHO DOCENTE

Resumo: Este texto objetiva caracterizar os impactos da plataformização e uberização da educação para a formação e o trabalho docente no contexto do neotecnicismo digital. Os resultados evidenciam que os impactos incluem o aumento da informalidade, a busca de fontes alternativas de renda, a substituição de atividades presenciais por atividades virtuais, o estabelecimento de uma gestão por resultados e metas com vistas à padronização curricular e ao controle docente e discente.
Palavras-chave: Plataformização; Uberização; Formação docente.

IMPACTOS DE LA PLATAFORMATIZACIÓN Y UBERIZACIÓN DE LA EDUCACIÓN PARA LA FORMACIÓN Y EL TRABAJO DOCENTE

Resumen: Este texto busca caracterizar los impactos de la plataformización y la uberización de la educación en la formación y el trabajo docente en el contexto del neotecnismo digital. Los resultados muestran que estos impactos incluyen el aumento de la informalidad, la búsqueda de fuentes alternativas de ingresos, la sustitución de actividades presenciales por virtuales, el establecimiento de una gestión por resultados y metas con miras a la estandarización curricular y el control docente y estudiantil.
Palabras clave: Plataformaización; Uberización; Formación de Profesores.

1 INTRODUCTION

The technocratic pedagogy starts from the "[…] assumption of scientific neutrality and [is] inspired by the principles of rationality, efficiency, and productivity, […] advocating the reordering of the educational process in a way that makes it objective and operational" (Saviani, 2021, p. 10). Freitas (1992) named this phenomenon neotechnicism in the 1990s, and more recently, the same author has called it digital neotechnicism (Freitas, 2021) with the intensified insertion of digital technologies amid educational policies and processes by corporate reformers.

Digital neotechnicism represents a digital update of the technicism of the 1970s and has been studied since the 1980s by Saviani (2021) and Freitas (1992; 2021). However, technicism has impacted Brazilian education at least since the 1930s, with the advent of the New School movement, manifesting intensely during the business-military dictatorship period, and being recently revived on new foundations (Saviani, 2011).

Technicism in the educational field was reconstituted within the context of the capital's productive restructuring starting in the 1970s, when the development of neoliberalism and the Toyotist mode of production, commonly called flexible capitalism, brought about transformations in the world of work (Antunes, 2020). In the world of work, terms such as "flexibilization, outsourcing, subcontracting, total quality control circle, kanban, just-in-time, kaizen, teamwork, waste elimination, participatory management, company unionism, among many others" became dominant (Antunes, 2020, p. 159). Regarding the educational field, technicism focused on techniques, objectives, and quantifiable results, to the detriment of a formative process aimed at humanization, strongly impacting methodologies, curricula, planning, teaching materials, assessment, and the organization of pedagogical work, all of which became controlled and standardized (Martini, 2021).

In the context of the Fourth Industrial Revolution, referred to as *Industry 4.0*, corporate groups have begun to advocate for the necessity of an *Education 4.0* (Lopes; Filho, and Iora, 2024). From a perspective of "marveling," and in a "naïve attitude" and "ideologization of the present" (Vieira Pinto, 2005, p. 38-39), **Education 4.0** is:

> [...] announced as a transformation in form and content in Brazilian education," bringing about changes to the educational system that encompass "teacher profile; content organization; methodology; institutional organization; student behavior [and] technology (Lopes; Filho, and Iora, 2024, p. 278).

The insertion of digital technologies into the educational field has ushered in a new stage of control over education, learning, teachers, and students. Digital neo-technicism, modernized primarily since the 2010s, combines capitalist demands within the educational sphere. In this context, we see the High School Counter-Reform (NEM), the National Common Curricular Base (BNCC), and the National Base for Teacher Education (BNC-Formação), all aligned with large-scale assessment processes, with significant impacts on the contexts of curriculum production and the updating of teaching methods. The political-economic scenario is conducive to the emergence of the phenomenon of platformization of education (Freitas, 2021). This digital neo-technicism presents a situation closely related to the platformization and uberization of teaching labor. In the following text, we argue that these concepts are byproducts of digital neo-technicism.

Among the interferences of digital neotechnicism in teaching work, we highlight the change in the teacher profile, who "must assume the attitude of a collaborator in the student's learning, possessing a broad command of basic and electronic applications to perform their function" (Lopes; Filho, and Iora, 2024, p. 278). Following the same idea, teaching work is compartmentalized into various functions—such as trainers/tutors/content creators, among others—becoming increasingly platformized and "uberized."

According to Cavazzani, Santos, and Lopes (2024), digital technologies are not merely means of communication, but also contribute to the creation of different social relations of production and exploitation. The same authors state that the trend developed under the neoliberal aegis since the 1990s in Brazil, through outsourcing, part-time, intermittent, and informal work, has accelerated significantly, especially since the Labor Reform and the COVID-19 pandemic.

Having established the context, this text aims to characterize the impacts of the platformization and Uberization of education on teacher training and work within the context of digital neo-technicism. To this end, we formulated the following research question: what are the impacts of the platformization and Uberization of education on teacher training and work within the context of digital neo-technicism? Besides the Introduction and the Methodology section, this study includes two other sections. The first conceptualizes and addresses the relationships between digital neotechnicism, platformization, and uberization. The second discusses the impacts of the platformization and Uberization of education on teacher training and work.

2 METHODOLOGY

The methodological approach comprises qualitative research of a descriptive, analytical, and interpretive nature, utilizing bibliographical research as its procedure. This methodology proved adequate for addressing the problem and achieving the objectives because, according to Minayo (2001, p. 21), qualitative research is concerned with the universe of "[…] meanings, motives, aspirations, beliefs, values, and attitudes, which corresponds to a deeper space of relationships, processes, and phenomena that cannot be reduced to the operationalization of variables."

In reference to the research procedure, we start from Gil's understanding (2002, p. 44) that bibliographic research is "developed based on already elaborated material." Thus, the research sought, through a Systematic Literature Review (SLR), to produce/collect data to survey and analyze the productions concerning the theme, to characterize the impacts of the platformization and *uberization* of education on teacher training and work in the context of digital neo-technicism. Galvão and Ricarte (2019, p. 58-59) understand the Systematic Literature Review as:

> […] a research modality that follows specific protocols and seeks to understand and give some logical structure to a large documentary corpus, especially by verifying what works and what does not work in a given context. It is focused on its character of reproducibility by other researchers, explicitly presenting the bibliographic databases that were consulted, the search strategies employed in each database, the process of selecting scientific articles, the inclusion and exclusion criteria for the articles, and the process of analyzing each article.

To achieve the objective, two databases were selected: Scientific Electronic Library Online (Scielo) and Redalyc Scientific Information System (Redalyc Brazil). These databases were chosen because they are important repositories of articles and journals that offer free access to their material. The selected time frame covered the period between 2017 and 2024. The choice of this period was due to the approval, in 2017, of Resolution CNE/CP No. 2, of December 22, 2017, which established the National Common Curricular Base (BNCC) for the stages and modalities within the scope of Basic Education, thereby ratifying the compulsory process of neotechnicism, now digital, in education. Regarding the year 2024, we considered the Covid-19 pandemic period, from 2020, up to the post-pandemic period to the present day—a period in which the processes of platformization and uberization of education intensified. In this way, it was possible to obtain publications that represent even the most recent knowledge production.

The repository search occurred in the second half of April 2024, initially using and combining the following descriptors: "platformization"; "uberization"; "education 4.0"; "capitalist technology", "technology and materialism", "technology and Historical-Critical Pedagogy", "technology and human development". Not all of these descriptors yielded relevant results for the preparation of the Systematic Literature Review. Therefore, we chose to select the descriptors or combinations associated with Boolean operators that presented the most satisfactory qualitative and quantitative results for achieving the objectives of this study. Thus, the final descriptors used were the following: "platformization" AND "education"; "uberization" AND "education"; "technology" AND "human development"; "technology" AND "materialism"; "technology" AND "historical-critical pedagogy" and "education 4.0". Initially, data that were presented in at least one article were electronically filed, totaling 57 articles in this first stage.

A second refinement was performed by reading the titles and abstracts, based on the following exclusion criteria: duplicate articles or those not directly related to the main theme, those that did not fit the temporal scope, were specific to certain areas of knowledge, addressed the themes in a celebratory manner, or were based on epistemological perspectives distant from historical-dialectical materialism, were excluded.

Thus, we arrived at the final number of 4 selected articles, which present approaches and methodologies aimed at understanding the phenomenon of education platformization, as well as uberization, precariousness, and the intensification of teaching work. The related themes allowed us to identify research gaps and provide a theoretical basis for this study. The articles are presented next in Table 1, including the repository, year of publication, title, authors, and objective.

Quadro 1 – Artigos selecionados

REPOSITORY AND YEAR	TITLE	AUTHORS	OBJECTIVE
Scielo - 2024	Precariousness of teaching work: learning platforms in the context of the diffuse factory.	André Luiz Moscaleski Cavazzani, Rodrigo Otávio dos Santos e Luís Fernando Lopes.	To problematize the issue of the precarization of teaching work in the face of new communication and information technologies.
Scielo - 2023	Academic Coaches on Instagram: academic crisis and Uberization of the researcher's praxis.	Diego de Oliveira Souza.	Analyze the profiles of researchers who offer academic advising on the social media platform Instagram.
Redalyc - 2023	Teaching work and emergency remote education: extension of the workday and appropriation of free time	Bruno Modesto Silvestre, Carolina Barbosa Gomes Figueiredo Filho e Dirceu Santos Silva.	Investigate the effects of remote work, resulting from the COVID-19 pandemic, on the working hours and free time of teachers working in the public education system of the state of São Paulo.
Redalyc - 2019	Ubiquitous work in postgraduate education (stricto sensu) in education: in/extensification and multitasking (Lara, Quartiero, and Bianchetti)	Rafael da Cunha Lara, Elisa Maria Quartiero e Lucídio Bianchetti.	Analyze what the tensions were and how they became evident in the incorporation of digital technologies into the work of professors at public and private universities.

Source: Prepared by the authors (2024).

The next step involved the complete reading and indexing of all selected articles, intending to deepen understanding and identify central themes, objectives, methodologies, theoretical and epistemological contributions, results obtained, as well as research gaps. Through the Systematic Literature Review, the necessity and importance of conducting studies and research on the theme of technology and human formation became evident. Contemporary phenomena such as the platformization and Uberization of education, as well as changes in teacher work relations, are byproducts of flexible capitalism and the adoption of the Toyota production system (Toyotism) and consequently of digital neotechnicism (Gonzalez, 2022). These phenomena have brought and will continue to bring significant consequences for educational processes, and therefore demand attention from researchers. In the next section, we seek to conceptualize and address the relationships between digital neotechnicism, platformization, and *uberization*.

3 PLATFORMIZATION AND UBERIZATION

To serve the economic interests of the ruling classes, the history of Brazilian education is marked by duality and educational inequality (Araújo, 2019). Since Colonial Brazil, dualism has characterized Brazilian education: "on the one hand, an education preparing the children of the ruling class for the continuation of their studies in the metropolis and, on the other, rudiments of work and acculturation for indigenous people and Black people" (Gonzalez, 2022, p. 79-80). It was no different in subsequent historical periods, as propaedeutic education was intended for the bourgeois classes while technical-professional education was advocated for the popular classes, a reflection seen in educational legislation and policies.

> Starting with the Revolution of 1930 and the Estado Novo Dictatorship in 1937, the centralization of powers regarding education began to be promoted, a process that culminated in the Organic Education Laws (Leis Orgânicas do Ensino). Generally speaking, the Organic Education Laws structured and reformed secondary technical-vocational education. Due to popular pressure and the need to offer a minimum level of education to the working classes, but without allowing them to reach the highest levels, secondary education was divided into academic secondary, industrial, commercial, and agricultural, thus creating institutionalized vocational education aimed at the popular strata, since only academic secondary education offered students the possibility of continuing their studies in higher education. The influence of the import substitution economic model and the national developmentalist ideology is therefore evident in the training of the workforce and in the effort to curb the demand for higher education, which was more expensive and intended for the dominant classes (Gonzalez, 2022, p. 80-81).

The 1930s also mark the rise of the New School Movement (Movimento Escola Nova), characterized by the 1932 Manifesto of the Pioneers of New Education (Manifesto dos Pioneiros da Educação Nova). This movement was defined by its critique of traditional pedagogy and its advocacy for so-called scientific teaching, focused on the student and their interests. Furthermore, in the Brazilian context, it championed public, free schooling and the secular nature of education, a condition that would provoke clashes and a rupture between the reformers/New School advocates and the Catholics. Although there was a veneer of educational democratization, New School advocacy ultimately dissolved the difference between research and teaching and, at the same time, impoverished teaching and rendered research unviable. Besides failing to benefit the proletariat, New School advocacy legitimized differences and the hegemony of the dominant class by improving education for the elites and lowering the quality of education intended for the poor (Saviani, 2021).

Although they present some differences, the New School movement already brought with it elements of technicalism, such as transferring its "concern from objectives and content to methods and from quantity to quality" (Saviani, 2021, p. 42). According to Gonzalez (2022, p. 93), it was with the "New School movement, in its critique of content-focused teaching and the passivity in the act of learning characteristic of traditional pedagogy, that techniques, methods, and procedures were brought into the spotlight and began to be viewed with greater emphasis".

Educational technicism remained strongly present during the business-military dictatorship (1964–1985), a period of authoritarianism and political-ideological alignment with US interests, in which the economy and education were supported by Human Capital Theory, productivism, and agreements between the Ministry of Education (MEC) and the United States Agency for International Development (USAID). This context influenced the approval of Law No. 5692/1971, which established initiation for work in primary education and compulsory professionalization in secondary education, which was later made more flexible at the request of the elites by Law No. 7.044/1982 (Gonzalez, 2022; Martini, 2021). Technicism in Brazilian education extended into the 1990s and persists in the most recent decisions, such as the approval of the Common National Curricular Base (BNCC) and the High School Counter-Reform (Law nº. 13.415/2017).

The term platformization, in turn, can be associated with the concepts of surveillance capitalism (Zuboff, 2020), platform capitalism, and industrial platform capitalism, which refer to the "[...] contemporary process of financial accumulation that presupposes new business models in which algorithms and data [are] controlled and extracted from platformized telematic networks [...]" (Cavazzani, Santos, and Lopes, 2024, p. 214). In this sense, the platformization of education encompasses the use of applications, digital platforms, and software in a massive process of substituting in-person activities with virtual ones, modifying and dehumanizing educational relationships, which come to be mediated by digital technologies. This strategy, widely used in Higher Education in the distance learning (EaD) modality, migrated to Basic Education through remote and hybrid teaching formats (Pinto, 2014; Freitas, 2021).

Platformization is usually accompanied by management by results and the establishment of large-scale external evaluations that lead to the accountability of students and teachers through targets. Control is completed with the imposition of national standards, aiming at curricular standardization, the promotion of meritocratic aspects, entrepreneurship, and the development of

skills and competencies. In this process, educational definitions are influenced by the business sector while the State is increasingly relieved of its responsibilities (Freitas, 2021).

The process of platformization in education contributes to the direct and indirect privatization of public education by encouraging public-private partnerships with digital technology companies and private institutes, such as the Brazilian Center for Innovation in Education (CIEB). Silva (2022, p. 103) states that CIEB is "one of the main institutions promoting technological solutions for public education in the country," which works to coordinate the "production of content for the training of teachers, public administrators, and the Edtech business sector" (Silva, 2022, p.103) and also operates "with its representatives in education secretariats, public councils, and federal agencies, raising the banner for the indiscriminate insertion of [digital] technologies in education" (Silva, 2022, p.103).

Two recent examples of the platformization of education occur in the state networks of Paraná and São Paulo. However, platformization strategies have been implemented in school networks across Brazil, supported by the BNCC, aiming at curriculum standardization and control over teaching work. Furthermore, teachers often receive suggestions for ready-made lesson plans, access to question banks, and pre-designed activities. Initial and continuing education is also undergoing a platformization process, where classes and training sessions via web conferences and digital platforms are becoming increasingly common.

Uberization is "a global trend" that presents itself as "[…] a new form of control, management, and organization of work, which is broadly related to work mediated by digital platforms but is not restricted to it" (Abílio, 2020, p. 111). Although it is not a recent phenomenon, as forms of flexible work were already noticeable decades ago, for example, in the work of cosmetic resellers (Abílio, 2020), digital technologies and the platformization of life have caused its intensification, imposing conditions of extreme informality on contemporary workers, which "demand an understanding of the engagement, accountability, and management of one's own survival, practiced and experienced by uberized workers" (Abílio, 2020, p. 113).

The word "uberization" has been used to define precarious work relations without formal employment contracts, mediated by digital platforms, among which is the pioneering company Uber. The term "uberization" is derived from this. In addition to the absence of employment contracts and excessive working hours, Uberization also manifests as disguised entrepreneurship (Souza, 2023).

Education and teaching have not escaped the process of uberization, which assumes "a structural and transversal character across all professions" (Lopes, Filho, and Iora, 2024, p. 284).

Although the COVID-19 pandemic provided "a boost to the industry, especially regarding digital technologies" (Seki, 2023, p. 337) and accelerated the digitalization of education through the mandatory use of digital platforms such as Google Classroom, Zoom, and Google Meet, on the other hand, Seki (2023, p. 328) considers "that there is a broader movement that determines the creation, expansion, and concentration of the digital educational technology industry." This is because corporate groups view digital technologies aimed at education as a business opportunity (Lopes, Filho, and Iora, 2024). Consequently, "[...] teaching work suffers, due to platformization, a dramatic process of precariousness, equivalent to what occurs in other sectors, such as, for example, Uber" (Cavazzani, Santos, and Lopes, 2024, p. 210). Given the importance of the theme today, in the next section, we will discuss the impacts of the platformization and Uberization of education on teacher training and work.

2.1 Impacts of platformization and Uberization

The technocentric perspectives, which extol digital technologies and the discourse fostered by edtechs and documents from international organizations such as the World Bank, have only advocated for the positive aspects of using digital technologies in education. For example, Cabral, Lima, and Albert (2019) consider the integration of digital technologies as a true digital revolution in which young people are protagonists and which provides them with freedom. Schuartz and Sarmento (2020, p. 430) state that digital technologies allow for "teaching a class in a much more dynamic, interactive, and collaborative way than in the past." From a more critical and less naive perspective, Silva et al (2020) contest the notion of students as digital natives and advocate for the necessity of digital literacy for both teachers and students, so that the appropriation of digital technologies favors a critical and civic use in virtual environments.

Upon analyzing this aspect, it is worth recalling Desmurget's (2022) inquiry into why the great gurus of Silicon Valley prohibit their children from using screens. The author further states that the media, allied with political and economic interests, and employing the power of repetition, produced fables and myths, such as the idea of a new generation, dubbed "digital natives," who learn differently. Therefore, teachers and teaching methods would be outdated. According to this notion, the school

system must adapt to these changes. The author also warns about the harms of screen use for children and adolescents, affecting both physical and psychological health as well as intellectual development, leading to language impoverishment, difficulty concentrating, and memory loss (Desmurget, 2022).

Contrasting with technocentric perspectives, Seki (2023) warns of the dangers of digital technologies, such as the ultra-individualization of teaching and learning; the unrestrained provision of personal data; control/influence of behavior through personalized recommendations; the formation of digital bubbles; the dissemination of disinformation; and the narrowing of individuals' worldviews.

The Systematic Literature Review allowed us to identify key concepts for understanding the phenomenon of platformization and Uberization of work and teacher education, including: diffuse factory, surveillance capitalism, platform capitalism, industrial platform capitalism, ubiquity, and multi-task worker.

The understanding of the concept of the diffuse factory "[…] points to the processes of dispersion, proliferation, and ubiquity of labor exploitation chains, which, as argued, are hallmarks of platforms" (Cavazzani, Santos, and Lopes, 2024, p. 214). On the other hand, the concepts of platform capitalism and industrial platform capitalism relate to the "[…] contemporary process of financial accumulation that presupposes new business models in which algorithms and data, controlled and extracted from platformized telematic networks […]" (Cavazzani, Santos, and Lopes, 2024, p. 214).

The concept of ubiquity is essential for the debate about the platformization and Uberization of teacher training and work, since platformized and Uberized work acquires a character of full-time dedication and the expropriation of free time. Ubiquity as a social construct, "is linked to the idea of omnipresence and is characterized as a faculty with divine nuances and/or as the quality of the individual being simultaneously present in different places or everywhere, all the time" (Lara, Quartiero and Bianchetti, 2019, p. 3).

Regarding the concept of multitasking, stemming from the Toyotist mode of production, it is understood as the need to perform many activities simultaneously, not only in person but also through digital means, a condition that, in the context of platformization and uberization, impacts teaching work. According to Lara, Quartiero, and Bianchetti (2019, p. 16), "the capacity to be a multitasker, related to being more productive and efficient […] is one of the praised and desirable attributes that emerge from discourses within the scope of digital culture."

However, Lara, Quartiero, and Bianchetti (2019) state that the multitasking nature acquired through the use of digital technologies for work has controversial effects and can even hinder the development of activities. This occurs because performing simultaneous activities favors interruptions in work processes, affects attention, and reduces the depth of concentration, thereby compromising the quality of work. Despite the difficulties, being a multitasker becomes a strategy adopted by teachers to cope with multiple demands and meet deadlines. Thus, teachers feel obliged to be constantly alert, as demands arrive on various days and times, transforming the teaching profession into a 24/7 work regime.

After the Industrial Revolution, labor relations focused on the dynamic between the bourgeoisie and the proletariat, where the means of production belonged to the capitalists and the workers were left to sell their labor power. However, in the context of the diffuse factory, platform capitalism, or even industrial platform capitalism, super-exploitation advances, leading to ultra-flexibilization and individual accountability. In this scenario, the means of production or precarious work also become the responsibility of the workers, resulting in the extraction of surplus labor. The worker must be available at all times and in all places, work activities invade the domestic space, and there are no guarantees of social security (Cavazzani, Santos, and Lopes, 2024).

In the context of the diffuse factory, platform capitalism, or even industrial platform capitalism, the Uberization and platformization of education impose a ubiquitous and multitasking character on both training and teaching work. This occurs as the process becomes mediated by digital technologies, and the responsibility for learning is transferred to the individuals, who must always be available to learn to learn, regardless of whether they possess the necessary digital artifacts. On the other hand, the teacher is also held responsible and must bear the costs of the activity, and must always be available to answer students' questions, respond to messages from education networks, and even carry out corrections, enter grades and absences, and/or perform other teaching activities that can invade differentiated spaces. Thus, with platformization and uberization, the workday or class has no set time to begin or end. Freitas (2021) argues that digital technologies are producing significant impacts on teacher training and work, and these impacts are not as positive as claimed by education entrepreneurs. Pinto (2014, p. 4) highlights "the enormous expansion of higher education offerings in Brazil in recent years, especially by the private sector and, in particular, in the distance learning (DL) modality." The propagation of DL is certainly among the most expressive impacts on teacher training, which is acquiring a hurried and precarious character, lacking a solid theoretical and

technical-scientific foundation.

Given this, if platformization deepens the precarity of teaching and removes its autonomy, Uberization deprives educators of the possibility of dignified work with rights. It is worth mentioning the work scheme of professionals operating within the Open University of Brazil Program (UAB), such as tutors and trainers in courses offered in the distance learning (EaD) modality in partnership with various public educational institutions. Upon analyzing the Program's public notices, we identified that these professionals do not have an employment bond with the university; they work for a fixed term and receive only a stipend, which does not reach minimum wage for tutors and is slightly more than that for trainers, for a 20-hour weekly commitment.

The tutors and instructors do not have established working hours and are responsible for providing guidance and monitoring a large number of students on various days and at different times. Furthermore, they sometimes have to bear the costs involved in the activity, such as the Internet and equipment. In addition, they face difficulties interacting with the students and the fact that they are not recognized as faculty either by the institution or by the students. In the private sector, the working conditions are even worse.

Cavazzani, Santos, and Lopes (2024) highlight that, in this process, all investment in equipment and inherent activities falls upon the individual themselves. Thus, it is the instructor who must bear costs such as electricity, computer, tablet, camera, internet, desk, chair, backdrop, recording, editing, student enrollment acquisition, and financial control, among others. All these responsibilities fall upon the instructor, who becomes a business, having to be available 24 hours a day, with countless duties, but with negligible income. This situation, besides intensifying precarization, contributes to the invisibility of the teaching profession.

Cavazzani, Santos, and Lopes (2024, pp. 210-211), while conducting an investigation into digital platforms that offer paid services—such as short courses, tutoring, and lectures, synchronously and/or asynchronously with registered teachers—including Plurall, Superprof, Profes, Hotmart, and Eduzz, identified that "[…] teachers encounter problematic working conditions analogous to those seen on the Uber platform," under which "[…] the lack of regulation, behind a sweetened discourse of entrepreneurship, fuels the precariousness of teaching work." This condition ultimately confuses and contributes to the creation of a new subjectivity, in which neoliberal ideology is absorbed by the working class. Even when faced with precarious, expropriated, super-exploited, and evaluation-subjected work, the workers begin to see themselves as businessmen, bosses, and entrepreneurs,

believing in the fallacious discourse of freedom to choose their working hours and schedule (Cavazzani, Santos, and Lopes, 2024).

This reality affects teachers, who, by being forced to work without a formal contract and without labor rights, start working as entrepreneurs, hourly workers, or scholarship holders, often depending on digital platforms and social media to earn income and subjecting themselves to constant availability, regardless of the time. Furthermore, this dynamic leads to the cheapening of the workforce and an even greater social devaluation of the teaching profession. As a result, professionalism and teacher identity are lost, and knowledge is emptied, since "technological mediations [are] the protagonists of the teaching-learning process" (Lopes, Filho, and Iora, 2024, p. 286-287).

The professor needs to be a multitasker, constantly being evaluated both by the platform and by their social media. This demand becomes an obligation: in addition to teaching, they must assume the role of a digital influencer, as the course is seen as a product and the professor as an entrepreneur. The company expropriates and profits from their work, while the platform functions as a factory that exploits them. Contradictorily, the context of the diffuse factory deprives them of their freedom, as they will constantly be exposed to demands for quality and availability to respond to students (Cavazzani, Santos, and Lopes, 2024). Under these conditions:

> The education professional is required to be responsible for the entire structure of the course to be sold, must handle all the equipment and costs originating from it, needs to be able to create and edit the videos and texts that will go to the students, in addition to needing to promote student recruitment and act as the finance department for their one-person company, among many other duties. And, after having done all this, they will receive only a percentage […] of the gross value of their course, demonstrating one of the main characteristics of precariousness, which is low remuneration or remuneration that flagrantly exploits the worker's surplus value (Cavazzani, Santos and Lopes, 2024, p. 223).

Cavazzani, Santos, and Lopes (2024, pp. 223-224) highlight "that this formula helps […] companies that can make labor precarious, but it also helps the State, […] so it does not need to spend money on employees." Thus, the neoliberal policies of investment cuts, spending caps, and fiscal frameworks, which lead to the absence of public entrance examinations and a growing number of contracted teachers, increasingly push educators towards the platformization and uberization of training and work.

Dominated by algorithms, workers are unable to perceive the company's intentions and the logic of submission to which they are exposed, suffering serious damage. Faced with the algorithms

of the diffuse factory and the cruelty of capitalism, teachers undergo a growing process of precariousness and commodification of their profession. In addition to the social devaluation of the teaching profession in Brazil, teachers, transformed into service providers, are charged with the need to improve and enhance the quality of education. The aggressive commodification and platformization of education not only precarious the working and living conditions of teachers but also tend to deepen the country's problems (Cavazzani, Santos, and Lopes, 2024).

Souza (2023) helps us understand the phenomenon of the platformization and uberization of education. Analyzing the profiles of researchers who offer academic advising on the social network Instagram, their study found that 94.44% of the researchers were female. Regarding the field of study, 19.44% were in the Human Sciences. As for academic qualifications, 30.56% held a master's degree. Only 66.67% identified solely as entrepreneurs. Concerning employment status, the author observed that if those who, in addition to being entrepreneurs, had another unstable activity (scholarship holders, interns, and temporary employees) were included, the percentage rose to 77.78%, while only 13.89% had statutory employment (Souza, 2023).

Given this information, we can conclude that, accompanying the process of feminization of teaching, platformization and uberization affect women more severely. Furthermore, the data demonstrate the devaluation of the humanities, as well as the difficulty faced by professionals in these fields in securing employment in the labor market. Consequently, these advisors found on Instagram a source of income, albeit an unstable one.

Souza (2023) further considers this reality as an unfolding of the academic, scientific, and university crisis, and of the disinvestment in research, science, and technology. However, the precarization of researchers' work is also felt within universities, manifesting itself through low salaries, difficulties in career progression, work overload, pressure for productivity, absence of public hiring processes, and insufficient funding for research, among other aspects that qualitatively interfere with the process and the relationship between advisor and advisee.

Souza (2023, p. 12) reminds us that "the most recent face of precarization is established through the mediation of ICTs [sic], especially with digital platforms," where researchers seeking an income opportunity are exposed to the influence of algorithms and must adapt to the standards of the social network to increase engagement and boost the chances of selling their services. Furthermore, these researchers find themselves in a situation of uberized and precarious work, without guaranteed income and without labor protection. The precarious praxis of the researcher, amid a structural crisis,

transforms education into a commodity and knowledge—now superficial and streamlined—into a means for profit, especially for the social networks and platforms that benefit the most. Instagram advisors end up becoming ghost researchers or writers, without academic recognition for their work (Souza, 2023).

Silvestre, Filho, and Silva (2023) contribute to the understanding of the impacts of the platformization and Uberization of education on teacher training and work by analyzing the extension of working hours and the expropriation of free time among teachers in the state of São Paulo, caused by the emergency remote teaching imposed during the COVID-19 pandemic. The authors point out that we are living through a historical period of immense technological innovations and their impressive interference in school dynamics. They also observe that the employment relationships of teachers in São Paulo had already been undergoing a process of precariousness, flexibility, managerialism, and the prolongation of working hours in recent years.

Silvestre, Filho, and Silva (2023) also state that the Covid-19 pandemic intensified these conditions and drove the expropriation of teaching knowledge and the platformization of education, gradually replacing living labor with dead, fragmented, simplified, mechanized, and automated labor. Additionally, there was an increase in workload and working hours compared to the period before the pandemic.

Among the changes following the emergency remote teaching period, as noted by Silvestre, Filho, and Silva (2023), are the increase in working hours across shifts and days of the week that were previously designated for rest before the pandemic. Furthermore, they identified an acceleration in the pace and quantity of work, associated with the worsening of precariousness caused by the reduction of free time, frustration, dissatisfaction with leisure activities, exhaustion, and fatigue. They concluded that the impacts of the intensive use of digital technologies in education and the increase in the workload continued even after the return to in-person classes in the São Paulo state school system.

In the same vein, Lara, Quartiero, and Bianchetti (2019) highlight that teaching work in Stricto Sensu graduate programs is also undergoing a process of teaching digitalization, imposing a ubiquitous, platformized, and uberized character. In this sense, there is an invasion of times and spaces that were previously non-work, the prolongation of the workday, resulting in the expropriation of faculty time and the establishment of a culture of continuous availability due to the ubiquity afforded by digital networks and devices.

The authors identified activities that certainly can be classified as the uberization and platformization of teaching, in addition to others caused by the political-economic context. Thus, the reports from the faculty members demonstrated the difficulties faced, such as insufficient time during the workday to perform activities, the need to extend the workday at home as a way to overcome the various tasks simultaneously requested, the increase in the number of tasks, the computerization of processes, the reduction of the administrative technical staff, and the consequent absorption by the professor of some bureaucratic activities, the use of varied platforms to access and feed different university systems that transform teaching work into a multitasking activity in a ubiquitous environment (Lara, Quartiero, and Bianchetti, 2019).

Lara, Quartiero, and Bianchetti (2019) conclude that the corrosion of leisure, the imposition of *"full-time"* work, the acceleration of life and work rhythms, the excess of external stimuli, and the need for urgent or extremely urgent responses are associated with the emergence of contemporary diseases such as depression, attention deficit hyperactivity disorder (ADHD), borderline personality disorder, or Burnout syndrome. These conditions establish a sense of unease in the postgraduate environment, create degrading living and health conditions, and take the expression "exclusive dedication," characteristic of the employment regime for most of the professors who participated in the research, to its ultimate consequences.

Through this study, we perceive that digital neotechnicism has significant repercussions on teacher education and work across all levels and modalities of education, and that the impacts of the platformization and uberization of education on teacher work and education involve the absence of a formal employment contract and the replacement of in-person activities with virtual ones, the imposition of platforms, programs, and applications used in the educational/formative processes for both students and teachers, as well as the imposition of a management system based on results and targets aimed at curricular standardization and control over teachers and students, and the encouragement of education privatization through public-private partnerships, which lead to an intense process of loss of autonomy and the intensification and precariousness of education and work.

CONSIDERATIONS

The objective of this text was to characterize the impacts of the platformization and Uberization of education on teacher training and work in the context of digital neo-technicism. To

achieve this objective, we formulated the following research question: What are the impacts of the platformization and uberization of education on teacher training and work in the context of digital neo-technicism?

Through a systematic review of the literature and the study of authors who focus on the theme, we understand that the impacts of platformization and uberization of education have caused significant changes in Brazilian education, affecting teachers and students at all levels and modalities of education, such that the teaching work acquires a ubiquitous and multitasking nature.

Among the impacts is a massive process of substituting in-person activities with virtual activities. These activities, previously used in Higher Education in the Distance Learning (EAD) modality, have migrated to Basic Education since the COVID-19 pandemic. Furthermore, there has been an imposition of platforms, programs, and applications in educational/training processes for both students and teachers, combined with management based on results and targets, aiming at curricular standardization and control over both teachers and students. Consequently, this has led to the direct and indirect privatization of education through public-private partnerships with companies that provide digital technology services, such as *Edtechs*.

These elements lead to an intense process of loss of autonomy, as well as to the intensification and precarization of teacher training and work. Another impact is the growing presence of faculty and researchers who use platforms to generate a source of income, albeit without formal employment ties and in an Uberized manner. Thus, they become responsible for the digital equipment and artifacts, as well as for producing classes and content, in addition to providing full-time support to students. This phenomenon affects women more severely.

In this context, we conclude that this phenomenon is a result of the current phase of capital restructuring, which, with the intention of eliminating labor obligations, dissolved formal employment and transformed workers into service providers and entrepreneurs. However, even the faculty members who have a formal employment bond are exposed to degrading living and working conditions, which expropriate their free time and oblige them to be available full-time, in addition to being constantly held accountable and pressured by educational results and targets.

This reality has led to the intensification of work and the precariousness of teacher training through the platformization and Uberization of their activities. In this sense, the insertion of digital technologies in education tends to worsen the existing scenario, as platformization is being implemented in public school systems across Brazil. Finally, the research highlighted some gaps,

such as the need to investigate how the actions imposed on education after the COVID-19 pandemic facilitated the implementation of measures that favored platformization. Furthermore, it is necessary to analyze the impact of the intensified use of digital technologies, the harms to learning, and the impacts of the advancement of privatizations within the context of digital neotechnicism. In addition to studies and research, there is also a need for collective organization in the processes of resistance and confrontation to halt the growing platformization and Uberization of Brazilian education.

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