

Digital platforms, control, and content-based teaching: the school in an upside-down world¹

*Plataformas digitais, controle e ensino conteudista:
a escola no mundo ao avesso*

*Plataformas digitales, control y enseñanza basada en contenidos:
la escuela en un mundo al revés*

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Abstract: This article critically reflects on the adoption of digital technologies in schools, in light of the ongoing platformization of public education. The research, of both documentary and field nature, focused on analyzing the political and pedagogical assumptions embedded in the public-private partnerships that are being established. Additionally, it draws on empirical data from a master's research project conducted at the Federal University of Uberlândia, which included interviews with teachers from two state public schools in the municipality of Uberlândia, Minas Gerais. The results show that, although there have been legal advances in public policies for digital inclusion in education, the implementation of digital platforms in schools often reinforces logics of control and surveillance that converge to favor the devaluation of teaching work, the privatization of public education, and may strengthen content-centered teaching practices.

Keywords: Platforms in Education; Digital Inclusion; Privatization; Neoliberalism.

Resumo: O objetivo do artigo é refletir criticamente sobre a adoção de tecnologias digitais nas escolas, diante do processo crescente de plataformação da educação pública. A pesquisa, de cunho documental e de campo, teve como foco analisar os pressupostos políticos e pedagógicos embutidos nas parcerias público-privadas que vêm sendo celebradas. Adicionalmente, utilizam-se dados empíricos provenientes de uma pesquisa de mestrado realizada na Universidade Federal de Uberlândia, na qual foram realizadas entrevistas com professores de duas escolas públicas estaduais do município de Uberlândia-MG. Os resultados mostram que, embora haja avanços legais no âmbito das políticas públicas educacionais de inclusão digital, a implementação de plataformas digitais nas escolas muitas vezes fortalece lógicas de controle e vigilância que convergem e favorecem, a desqualificação do trabalho docente, a privatização da educação pública e podem reforçar práticas de ensino centradas no conteúdo.

Palavras-chave: Plataformas na Educação; Inclusão Digital; Privatização; Neoliberalismo.

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Resumen: El objetivo del artículo es reflexionar críticamente sobre la adopción de tecnologías digitales en las escuelas, ante el creciente proceso de la plataforma de la educación pública. La investigación, de carácter documental y de campo, se centró en analizar los presupuestos políticos y pedagógicos implícitos en las asociaciones público-privadas que se están celebrando. Además, se utilizan datos empíricos obtenidos en una investigación de máster realizada en la Universidad Federal de Uberlândia, en la que se entrevistó a profesores de dos escuelas públicas estatales del municipio de Uberlândia-MG. Los resultados muestran que, aunque se han producido avances legales en el ámbito de las políticas públicas educativas de inclusión digital, la implementación de plataformas digitales en las escuelas a menudo refuerza lógicas de control y vigilancia que convergen y favorecen la descalificación del trabajo docente, la privatización de la educación pública y pueden reforzar prácticas de enseñanza centradas en el contenido.

Palabras clave: Plataformas en Educación; Inclusión Digital; Privatización; Neoliberalismo.

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Introduction

In the contemporary scene, digital platforms have become structural elements of society. The centrality of these resources has evolved into a phenomenon known as “platformization,” which refers to “the penetration of economic, governmental, and infrastructural extensions of digital platforms into the ecosystems of the web and applications. This process affects sectors such as cultural production, public health, education, journalism, and urban transportation” (Grohmann, 2020, p. 100). Platformization has had significant impacts on public schools and raised concerns about safeguarding education as a public good. To broadly understand this issue, it is essential to place the incorporation of digital technologies into Brazilian schools in a historical context, alongside the transformations occurring in the world of work.

In Brazil, the first signs of platformization appeared within public policies for digital inclusion through programs such as ProInfo (*National Program for Educational Informatics*), created in 1997 to promote the use of technology as a pedagogical tool in basic education (Bonilla, 2010). During this period, technological introduction in schools primarily occurred through the establishment of computer labs. Some leaders of the free software⁴ movement mobilized to design digital inclusion projects that incorporated open-source software into the

⁴ Free software is a computer program whose source code is open and can be freely used, studied, modified, and redistributed.

public sphere (Bonilla, 2010). However, implementation in schools was unsuccessful due to a lack of teacher training and to the intense lobbying by technology companies with governments. As a result, the computers in these labs came with proprietary software⁵ pre-installed (Pretto et al., 2021).

This model had already proven to be limited — pedagogically and economically — since it served only a small number of students and required high licensing costs. It was also politically restrictive, reducing teachers and students to passive users of technology. Nevertheless, it appealed to the market, which profited from both selling licenses and spreading the culture of using these systems, thereby expanding its reach beyond schools and strengthening its position (Pretto et al., 2021). Meanwhile, in the world of work, automation marked the transition from financial capitalism to an information economy, demanding new worker competencies — digital skills.

The 2010s were characterized by the popularization of smartphones, the expansion of home broadband connections, and the rise of social networks, all of which changed society's information and communication behavior. At that time, the National Education Plan (2014–2024) reinforced the use of digital technologies to expand access to education. In this context, private companies such as Google and Microsoft began offering educational solutions integrated into their platforms, while universities and public-school systems began adopting their Virtual Learning Environments (VLEs). It is worth noting that the National Education and Research Network (RNP), in partnership with the Federal Universities (UFs), has been working since 2010 on developing technological solutions such as Web Conferencing (RNP Web Conference) and the Moodle learning environment (Pretto et al., 2021) — examples of digital tools collaboratively built within the national territory.

Around the same period, the first platform-based work models emerged, relying on algorithms, data, and on-demand labor — such as Uber, launched in 2016. This movement influenced educational discourse, including the National Common Curriculum Base, published in 2018, which emphasizes the need to develop digital competencies to participate in the world of work.

In 2020, schools and universities across Brazil closed their doors as a protective measure against the COVID-19 pandemic. During the pandemic, there was a rapid acceleration in the implementation of digital services by major commercial software companies such as Google and Microsoft, across public and private education at all

⁵ Proprietary software is software that keeps its source code closed, releasing only the binary code upon payment of a license fee.

levels, through contracts or agreements with limited transparency (Pretto et al., 2021). This period was marked by the infiltration of market-driven agents into Brazilian education, bringing digital platforms that operate through data collection and storage. According to the TIC-Education survey, 62% of public and private schools in the country adopted educational digital platforms and virtual learning environments in 2023 (CGI.BR, 2024). Even after the pandemic, these resources remained widely used by teachers, administrators, and students.

Based on this context, the research problem was outlined to conduct a critical analysis of the process of platformization in education and its possible effects on teaching work, pedagogical practices, and student formation. The study, of both documentary and field, aims to analyze the political and pedagogical assumptions underlying platformization processes. Additionally, the article incorporates empirical data from a master's research project conducted within the Graduate Program in Education at the Federal University of Uberlândia (Vendola, 2025), which involved interviews with high school teachers from state public schools in Uberlândia, MG. These teachers taught the subject Technology and Innovation, a curricular component introduced after the High School Reform approved in 2017 (Law No. 13.415/2017), through the formative itinerary titled *"Introduction to the World of Work, Technology, and Innovation."*

The analytical focus was the state of Minas Gerais, where digital platforms have taken on a central role in public education. In addition to bibliographic sources, documentary materials were also consulted, including news reports, articles, content from the official website of the State Department of Education of Minas Gerais (SEE/MG), widely circulated media outlets, and information obtained through the Electronic Citizen Information Service System (e-SIC). The analysis focused on digital resources and platforms recently adopted by the state and on their unfolding in schools' daily life.

To this end, the first step was to discuss the dimensions that shape the current context of neoliberal capitalism, data economy, and surveillance. Subsequently, the effects of platformization in education are examined through a critical analysis that highlights how the digital managerial logic introduces new mechanisms for regulating and controlling teaching processes, thereby expanding forms of privatization. Finally, the discussion turns to the presentation of official documents detailing the digital platforms adopted by the state of Minas Gerais, which establish a connection to teachers' accounts in the state public school network. This approach aims to show how adopting these tools creates opportunities to expand market niches and to advance privatization processes, as discussed throughout the text.

Neoliberal Capitalism, Digital Platforms, and Surveillance

To begin with, it is essential to note that the global political economy underwent a major reconfiguration starting in the 1970s. These changes became evident with the shift from the Fordist model of production to the regime of flexible accumulation. According to Harvey (2014), this transition was linked to technological transformations and advances in automation, as well as the pursuit of new product lines and market niches. Such developments contributed to the geographic dispersion of companies toward regions with more easily controlled labor, allowing employers to exert pressure on a weakened workforce amid rising global unemployment.

This political and economic transformation of capitalism brought greater market volatility, increased competition, and reduced profit margins. It enabled employers “to take advantage of the weakening of union power and the large surplus of labor (unemployed or underemployed) to impose more flexible work regimes and contracts” (Harvey, 2014, p. 143). All of this machinery ultimately functions to sustain and control the unequal power relations between developed countries and the Third World.

In the mid-1980s, Milton Santos (2011) observed that technologies represent the multifaceted totality of the devil, foreseeing that these tools would eventually be used to fuel capital accumulation.

Thus, technological advancement combined with the decline in regular employment has led workers to accept part-time, temporary, or subcontracted jobs, resulting in the loss of social rights, longer hours, and continued underpayment. The number of individualized and invisible work relationships—often disguised as service provision—has grown exponentially. Today, digital platforms have become the primary means of establishing flexible or temporary employment relationships.

The basic idea behind platform architecture is to mediate the relationship between workers and clients who are neither geographically close nor synchronized in time. Uber is the most common example: it connects people who need transportation with those willing to provide it. In this sense, Woodcock and Graham (2022, p. 41) point out that “platforms are far from being a simple marketplace where clients and professionals meet; they are designed with coded tools that impose rules and incentives on all parties with which they interact.” Platforms are everywhere, mediating a wide range of services. As Antunes (2020, p. 13) observes,

What we have, in fact, is an expansion of precarious work, which affects—albeit in different ways—workers across a wide range of sectors, from software industry employees to call center and telemarketing operators, and progressively reaches industrial sectors, agribusiness, banking, commerce, fast food, tourism, and hospitality, among others. It even includes migrant workers, whose numbers are increasing worldwide [...].

It is essential to be clear that the platformization of education is part of a broader context aimed at serving the new dynamics of capital, in which data-driven business models are spreading worldwide (Morozov & Bria, 2019). This new economic model has changed the very nature of work to such an extent that various sectors and professions now depend on platforms to continue operating.

Criticism is therefore necessary not only of current technology but also of the role of these ever-evolving artifacts within contemporary global capitalism and their reinforcement of long-standing structural inequalities. Even though machines themselves do not discriminate against users, they produce and reproduce social relations of gender and race, especially in the context of labor (Woodcock & Graham, 2022). For example, domestic work performed primarily by women (predominantly Black women) has long been considered less productive than waged labor, which is primarily performed by men, diminishing its importance and devaluing the skills required to perform it (Woodcock & Graham, 2022).

In other words, “platform-mediated labor does not take place in an abstract realm but rather through different forms of value appropriation, depending both on the characteristics of the work platforms and on divisions of gender, race, and territory” (Grohmann, 2020, p. 101). In a country like Brazil, where informal labor is the rule rather than the exception, platform-based work relations may further exacerbate gender and racial inequalities.

Beyond the exploitation and precarization of labor, the formula of surplus value also applies to the process of capturing and controlling various dimensions of human life through the appropriation of users’ personal data. For example, mobile applications, innovative IoT products (such as refrigerators and smartwatches), and facial recognition cameras powered by artificial intelligence collect data that is later stored and processed by digital platform developers or cloud service providers (such as Google, Meta, Microsoft, and Baidu). These data then support other organizations (such as Netflix, Spotify, Airbnb, and Uber) in customizing their services or connecting clients and service providers (Nathanson, Morales, & Ferreira, 2022). The problem is that this infrastructure for collecting, storing, and processing data can be used for commercial and surveillance purposes without users’ consent. In other words, “Devices (computers

and phones), bodies with wearable technologies, our cities, and institutions with smart surveillance become targets of a new form of power” (Nathanson, Morales, & Ferreira, 2022, p. 27). This power is based on the data economy, which appropriates human experience to generate profit, characterizing the new form of accumulation in contemporary capitalism.

Mobile applications, innovative products, social media platforms, and online games generally follow the same business model: they offer digital resources for free in exchange for collecting and processing users’ data. These data are then sold to advertisers as predictions about user behavior—that is, technology companies make money by selling data to increase the efficiency of advertising. According to Zuboff (2019), a key author in the debate on the use of digital platforms, the problem with this business model is that it does not stop at predicting user behavior. For profits to grow, forecasts must become increasingly accurate; consequently, it becomes necessary not only to predict people’s behavior but to modify human behavior on a large scale.

According to the *TIC Kids Online Brazil* survey (CGI.br, 2025), 42% of children and adolescents aged 9 to 17 have a YouTube profile, 69% on WhatsApp, 63% on Instagram, 45% on TikTok, and 19% on Facebook. The data shows that these young people, whose brains are still developing, have been exposed to a variety of commercial content since childhood⁶.

Another major issue involves the mechanisms designed to maximize users’ time on these platforms. “Social networks personalize what we receive, offering selective versions of reality that can influence or manipulate opinions and behaviors. They operate within what is known as the ‘attention economy’” (Brazil, 2023, p.7). This excerpt is from the *Brazilian Strategy for Media Education*, a document produced by the Secretariat for Social Communication (Secom) of the Presidency of the Republic in collaboration with other public agencies and institutions. The document aims to raise awareness among education professionals about the business model of digital platforms. One of the strategy’s main goals is to promote media education by suggesting pedagogical practices focused on digital safety and by guiding teachers and students on protecting their online privacy.

Reports from teachers in state public schools in Uberlândia, MG, confirm that recreational digital platforms create tensions in the classroom. Teachers reported spending a large portion of class time asking students to put away their cell phones (Vendola, 2025). Due

⁶ The term “childhood” is used in its broadest sense, including both childhood and adolescence.

to such problems, the federal government enacted Law No. 15,100 (Brazil, 2025a), which prohibits students from using portable electronic devices in basic education schools.

In addition, in response to growing concerns about children's mental health, Secom published a document titled *"Children, Adolescents, and Screens: A Guide to the Use of Digital Devices"* (Brazil, 2025b). This guide offers recommendations to parents, guardians, and educators on the healthy use of digital devices, promoting practices that reduce the risks associated with excessive screen time. It addresses topics such as online safety, cyberbullying, and the importance of balancing digital activities with real-world interactions.

It is beyond the scope of this article to discuss in depth the effects of recreational screen use during childhood or to expand on the debate about platform-based labor. The purpose of this reflection is to illustrate how the business model of digital platforms triggers a series of problems, including risks to privacy, surveillance, labor precarization, and mental health issues, among others, that indirectly affect pedagogical work in schools.

In the realm of educational digital platforms, the mechanisms are similar. Although digital tools are adopted to support teachers in conducting pedagogical activities and providing educational networks with relevant data to understand students' learning trajectories, the methods of collecting, storing, and using data generated by users' navigation in such systems raise concerns about the preservation of privacy and the protection of personal data of teachers, administrators, and students. These concerns point to various gaps in which privacy regulations and criteria for public-private partnerships remain imprecise—issues that must be critically examined, as discussed below.

Digital Platforms in Schools

The growing presence of digital platforms in schools and the resulting changes in pedagogical processes raise concerns about the autonomy of teaching work and the quality of teaching and learning processes mediated by technology. It is necessary to recognize the political and ideological nature that permeates the field of digital platforms to achieve a broader and deeper understanding, questioning the power relations embedded in the field and the formative projects and interests to which the current incorporation of digital technologies in education is subordinated (Barbosa & Alves, 2023). This approach seeks to deepen the debate while maintaining awareness of the need for digital inclusion in society.

By definition, the platformization of education refers to the intensified digitalization of education through educational platforms, denoting a process in which individual companies and/or commercial networks systematically collect, algorithmically process, circulate, and monetize user data (NIC.br, 2022, pp. 23–24). In Brazil, according to the *TIC-Education 2023* survey, more than half of schools have adopted platforms and virtual learning environments (62%), and among state public high schools, this number reaches 81% (CGI.br, 2024). According to the same study, the most widely used resource in state school networks is Google Classroom (61%).

In line with this information, in 2023 the State Department of Education of Minas Gerais (SEE/MG) invested 123 million reais to purchase 65,000 Chromebooks, providing full access to all tools in Google Workspace for Education. The purchase was funded jointly by the federal and state governments (Agência Minas Gerais, 2023).

Then, in April 2025, SEE/MG announced another partnership with Google to introduce a more sophisticated tool to the state's public schools: Google Workspace for Education Plus, a virtual learning environment powered by artificial intelligence (AI) that provides students with personalized learning content. The contract signed in 2025 between SEE/MG and Google amounted to R\$30.6 million (State Department of Education of Minas Gerais, 2025). It was justified by the platform's potential to customize educational content for each student.

One of the main advances of the tool is its ability to guide students to different learning resources based on their choices and the challenges they identify throughout the educational process. In addition, the AI Tutor, an artificial intelligence feature integrated into the platform, identifies students' difficulties and suggests specific strategies to optimize teaching based on each individual's learning experience [...] (State Department of Education of Minas Gerais, 2025).

The report shows that the Department views an intrinsic relationship between investment in technology and improvements in educational quality, claiming that digital tools enhance learning. This is reflected in the statement by the superintendent of the School for the Training and Professional Development of Educators of SEE-MG: “this new acquisition will expand communication and interaction, making content more engaging and effective for our students” (State Department of Education of Minas Gerais, 2025). The statement attributes the improvement of educational processes to technological apparatuses and, as a result, legitimizes the establishment of new contracts with Google in an uncritical manner, disregarding the mechanisms that operate through the control and standardization of teaching and learning processes (Barbosa & Alves, 2023).

In this era of digital platforms, it is common to encounter discourses that insist that technology can reinvent the school (Amiel, 2012). On the other hand, even though a change in methodologies, as well as in school spaces and times, is urgently needed, “care must be taken not to lose sight of the purposes of the school—what it is and what it may become” (Amiel, 2012, p. 23). The platformization of education, currently on the horizon, does not seem to address the real problems of schooling, nor does it genuinely concern itself with the quality of teaching and learning; rather, it represents yet another way of adapting education to the new regulatory devices of neoliberalism.

The Google Workspace for Education Plus tool was developed based on the Minas Gerais Reference Curriculum and on the SEE/MG database containing information on 245,000 staff members and 1.3 million students enrolled in the final years of elementary education, high school, and Youth and Adult Education (EJA) (State Department of Education of Minas Gerais, 2025). In this case, Google did not need to collect users’ browsing data—SEE/MG voluntarily provided information from thousands of teachers and students.

In common sense, it may seem that there is no problem with using data from millions of students to provide greater convenience, agility, and personalized services. However, it is essential to consider that the platform may cross-reference this data with information from other systems owned by the same company or even by third parties. The issue is that “the relationship between these systems is not clear, and there is no information on whether data from these platforms are cross-referenced in any way and used for commercial purposes or product improvement” (Pretto et al., 2021, p. 236). Giants like Google have an extensive network of partners, and their business model is based on the trade of information—for instance, the Google Partner Program, which outlines categories for companies interested in acting as intermediaries in the sale of services and applications (NIC.br, 2022). Google is one of the dominant providers of digital educational services in Brazil, and with this accumulation of power, the company can impose its contractual terms on public education networks, setting conditions related to data storage and processing. Given this, there is a possibility that the adoption of proprietary digital platforms could result in surveillance practices over teaching work.

In connection with the question of platform power, according to a UNESCO (2023) report, in 46% of countries worldwide, digital skills standards are often determined by non-state actors—primarily commercial—rather than state actors. Another study conducted in schools that adopted Google Apps for Education in Sweden revealed that the trend toward implementing such tools in education is driven by the

technology industry rather than by teachers' pedagogical needs (Lindh & Nolin, 2016, as cited in NIC.br, 2022). This body of evidence raises concerns about the impact of platforms on the autonomy of teaching work.

Furthermore, it is clear that the platformization of education is not a simple transposition or modernization of analog content into digital form to achieve better-quality education. Instead, it represents a new type of dependency on foreign infrastructure aligned with neoliberal regulatory mechanisms (Morozov & Bria, 2019). In this context, Google and other Big Tech⁷ companies are part of "an accelerated reinvention of social relations that now unfold on a new plane, with specific technical characteristics and populated by some old—but certainly also new—actors, often wielding disproportionate power in this struggle" (NIC.br, 2022, p. 6).

By encouraging the use of proprietary digital platforms, we are increasing the social, political, and economic power of billion-dollar multinational corporations. This can be seen in the value of the contracts signed between Google and the State Department of Education of Minas Gerais (SEE/MG) in 2023 and 2025, which together total R\$153.6 million—public funds transferred directly into Google's hands.

Another example of digital service procurement by SEE/MG in 2025 is the renewal of the contract with the publisher Study Play e Educational Solutions Ltda, valued at R\$250 million for a period of only 24 months, according to the transparency portal (e-SIC) (Minas Gerais, 2025). The Study Play application supports 700,000 students in the state public school system in preparing for the ENEM (National High School Exam) by providing video lessons, mock exams, essay corrections, individualized performance reports, learning monitoring, and personalized study paths created by AI based on each student's strengths and weaknesses⁸.

AI tools are attractive because they offer users a sense of "autonomy." However, it is essential to remember that while these tools may enable self-regulated learning processes—in which students formulate their own questions—teachers play a necessary role as tutors or guides in the learning process, supporting "those who do not know that they do not know": students who are not yet capable of formulating questions because they do not know what to ask (Lapa, Pina, & Menou, 2019).

⁷ Big Tech companies are large global technology companies that dominate the digital market, concentrating economic power, data, and influence over communication, consumption, and work—such as Google, Apple, Amazon, Meta, and Microsoft.

⁸ More information about the application is available at: <https://estudoplay.com.br/>. Accessed on: August 28, 2025

Although the discourse is appealing and often presents AI as an element of personalized learning, it is crucial to recall that technological tools are not bearers of knowledge—they are bearers of information. Information only becomes knowledge through education, which depends on the learner’s historical experience and the network of meanings they can establish with that knowledge (Lucena, Schlemmer, & Arruda, 2018). From this perspective, SEE/MG seems to forget that, without pedagogical mediation, digital resources such as those from Google or Study Play may amount to mere exposure to information, without guaranteeing that students will learn the content. Furthermore, without teacher mediation, platforms alone cannot ensure the critical, creative, or even functional use of technological resources.

SEE/MG also established a partnership worth R\$7 million with the Britannica Education platform in July 2024 (State Department of Education of Minas Gerais, 2024). The platform offers a digital collection containing millions of articles, images, videos, dictionaries, and interactive maps across various fields of knowledge, with unrestricted access granted to teachers in the state public school network for educational use.

SEE/MG claims that the partnership with Britannica Education will “enhance digital literacy among both teachers and students in elementary and high school education.” This will be achieved because “the teaching staff will have access to and training in digital literacy skills geared toward education.” It adds that “all teachers will receive training focused on using the collection in the best possible way” (State Department of Education of Minas Gerais, 2024)—that is, teachers will be trained to use the Britannica Education application.

The partnership with Britannica Education demonstrates the extent to which proprietary platforms have been integrated into education. It shows that SEE/MG is outsourcing functions that should be within the purview of public administration—in this case, teacher training. This is concerning because “teachers’ technological literacy must be broad and independent of proprietary and closed technologies” (Blikstein et al., 2021, p. 21, as cited in NIC.br, 2022, p. 28). Moreover, Decree No. 9,204 of November 23, 2017, which established the *Connected Education Innovation Program* (Brazil, 2017b), sets out principles—such as vision, training, digital resources, and infrastructure—for innovation, connectivity expansion, and technological development in education. These principles guide basic education networks participating in the program to create an internal public framework: Article 13, Section II — “to develop diagnostics and local plans for the inclusion of innovation and technology in the schools’ pedagogical practice” (Brazil, 2017b). In other words, municipal and state networks aimed at promoting the technological training of teachers internally but are hiring companies to do so.

Vendola (2025) study interviewed teachers from two state public schools in the municipality of Uberlândia, MG, who teach the subject *Technology and Innovation*, which forms part of the new school curriculum through the formative itineraries of the component “*Introduction to the World of Work, Technology, and Innovation*” (Brazil, 2017a). To teach this subject, teachers must complete a training course offered by SEE/MG, after which they are considered qualified to teach the discipline. However, according to the teachers’ accounts, the course content is quite generic. It does not provide sufficient support for working with this curricular component: “the course provides four booklets for each year of high school, and if the teacher follows the material as is, the class becomes just another lecture with no practical application” (Vendola, 2025, p. 113).

One of the teachers mentioned using the Arduino tool in class—a free hardware and software platform for creating interactive electronic projects and helping students learn the basic principles of programming languages. According to the teacher’s account, SEE/MG sent financial resources for the school to purchase robotics kits. However, the technological resources acquired were insufficient to enable practical robotics lessons for all students (Vendola, 2025). Seeking to provide meaningful technological experiences for his students, the teacher took the initiative to learn to use the Arduino programming environment on his own (Vendola, 2025).

In summary, Vendola (2025) study reveals that SEE/MG’s technological training courses for teachers, as well as the technological resources available in state schools, are insufficient to ensure practical activities in digital education.

The Study Play platform was mentioned during the interviews. According to the accounts, teachers of other subjects—beyond *Technology and Innovation*—also use the application to support the study of curricular content and to correct students’ essays. In addition, teachers praised the app’s ability to generate personalized study plans using AI (Vendola, 2025). However, it is essential to reflect on the use of AI so that, regardless of how it is conducted, the teaching and learning process does not become exclusively content-centered. Barbosa and Alves (2023) point out that assigning AI a role in the evaluative process for students subordinates pedagogical work to an instrumental, training-based model mediated by digital platforms, thereby undermining the very nature of teaching practice. Caution must be taken to ensure that the teaching and learning process is not reduced to the efficient preparation of students for exams, at the expense of other essential dimensions of the educational endeavor.

News reports about the introduction of digital platforms in schools often use highly appealing terms and expressions that can create the illusion that such apparatuses alone can

improve the quality of education. However, an analysis of the broader context—considering the commercial interests involved in these partnerships, the business model of the platforms, and the mechanisms used to generate personalized content—reveals that the introduction of proprietary digital platforms in public education transforms the teaching process in ways that lead to a loss of autonomy in decision-making regarding the means and ends of education. We know that these platforms provide tools that can record all teacher activities, allowing education departments to evaluate performance objectively based on navigation data (Previtali & Fagiani, 2020), thereby establishing practices of control and surveillance over teachers' work (Pretto et al., 2021).

Finally, in the debate over the platformization of education, it is essential to emphasize that introducing such resources fosters individualized learning focused on content memorization, limiting critical reflection and students' autonomy to express preferences about how, where, and what they wish to study and learn. Moreover, it diminishes the relevance of teachers as sources of inspiration and creativity. Proprietary digital platforms are closed, ready-made tools that prevent user modification, thereby restricting the interactive potential of digital networks as spaces for developing collaborative, transparent, and creative classroom dynamics that could help students engage with technologies in a critical and inventive way.

Conclusions

The news published on SEE/MG's official channels and discussed in this article show that the justifications for introducing digital platforms in schools align with neoliberal discourse, employing terms such as "*flexibility*," "*innovation*," and "*modernization*." In a sarcastic and metaphorical tone, Galeano (1999) said that in the upside-down world, things are rewarded in reverse: honesty is despised, work is punished, unscrupulousness is rewarded, and cannibalism is fed. In Galeano's "school of the upside-down world," students are required to take classes in impotence, amnesia, and resignation.

In Brazilian schools, instead of learning how to protect their privacy online, students use private educational platforms, and their personal data is handed over to foreign companies that trade in information. Teachers—who should be revered for their profession—are being persecuted by fundamentalist political groups that encourage students to record their classes⁹.

⁹ To learn more: <https://www.otempo.com.br/politica/aparte/projeto-quer-permitir-que-alunos-da-rede-publica-estadual-filmem-as-aulas-1.2854399>. Accessed on October 25, 2025.

In one case, a teacher was assaulted after asking a student not to use a cellphone during class¹⁰, even if the teacher had made a mistake, the use of cell phones in school is prohibited by federal law, and violence does not solve problems; dialogue does.

Brazil, which in the early decades of this century developed digital resources based on free software principles—stable, secure systems that were even tested in schools (Pretto et al., 2021)—now faces a reality in which more than half of public schools and universities in the country use proprietary solutions for management and pedagogical practices (CGI.br, 2024). The State, which should be the provider and maintainer of educational systems, has become merely a purchaser of academic services (NIC.br, 2022). The logic has been completely inverted.

Based on the news and documents presented throughout the article, it was identified that the state education network of Minas Gerais is becoming increasingly dependent on technology companies. The discourse that justifies allocating public funds to contracting digital services—an investment of R\$280,600,000.00, only with contracts in 2025—associates these tools with modernization and improvements *in the quality of education*. However, the perception that emerges from the debate on the adoption of proprietary digital services is that this process reinforces a content-centered logic of teaching, focused on the ease of accessing information through applications, while ignoring that students' engagement with content requires pedagogical mediation.

In this situation, Paulo Freire would say that...

To transform the educational experience into mere technical training is to belittle what is fundamentally human in the educational act: its formative character (...). To deify or demonize technology or science is a highly negative and dangerous way of thinking wrongly (...). Thinking rightly, on the contrary, requires depth rather than superficiality in the understanding and interpretation of facts [...] (Freire, 2015, pp. 32–33).

Therefore, it is not a matter of denying the communicative and informational potential of digital technologies, but instead of recognizing that digital platforms alone do not represent an improvement in the quality of education without the mediation of teachers.

In this regard, it is essential to recall that there are regulatory frameworks in Brazil addressing the need for critical, ethical, responsible, and safe participation of teachers and students in digital environments, both inside and outside schools (Brazil, 2017b, 2025a, 2025b). Furthermore, these documents enable intersectoral programs and

¹⁰ To learn more: <https://g1.globo.com/df/distrito-federal/noticia/2025/10/21/pai-de-aluna-da-nove-socos-em-professor-apos-bronca-por-uso-de-celular-em-sala-de-aula-no-df.ghtml>. Accessed on Oct. 25, 2025. 2025.

projects coordinated by the Ministry of Education (MEC) to support state and municipal education departments through technical assistance for curriculum updates and teacher training planning. This demonstrates that Brazil already possesses the knowledge and technological infrastructure necessary to ensure that children and adolescents receive a digital education that is both critical and creative, making use of digital resources and services safely and consciously.

Despite the aforementioned regulatory advances, there are still challenges regarding the regulation of platforms to ensure more effective transparency in the collection, storage, and processing of user data, as well as the accountability of platforms for their negative impacts in the sphere of labor, including teaching work (Pretto et al., 2021; Woodcock & Graham, 2022). Thousands of teachers and students use proprietary digital tools, and their data privacy must be guaranteed.

We want to conclude this article by reaffirming that the role of the school is to educate citizens, and citizenship goes beyond political rights—it involves the ability to participate in public life and act upon the world. Today, this formative role is further complicated by the presence of digital devices, necessitating reflection on citizenship in digital environments as well. Therefore, teachers must remain engaged in digital and media education in schools, following the example of the teacher from a public school in Uberlândia who went beyond the curriculum because he considered its content insufficient for a meaningful technological experience.

It is hoped that many more people will become aware of the importance of this issue and have the opportunity to learn to use digital resources critically and creatively, thereby helping to build a healthier, more plural, and participatory digital environment.

References

AGÊNCIA MINAS GERAIS. High school teachers from the state public education network are already receiving Chromebooks. *Agência Minas Gerais – Educação*, Belo Horizonte, July 6, 2023. Available at: <https://www.agenciaminas.mg.gov.br/noticia/professores-do-ensino-medio-da-rede-estadual-de-ensino-ja-estao-recebendo-chromebooks>. Accessed: Aug. 30, 2025.

AGÊNCIA MINAS GERAIS. The Government of Minas announces an innovative exercise tool for students and educators of the state public education network. *Agência Minas*, Apr. 4, 2025. Available at: <https://www.agenciaminas.mg.gov.br/noticia/governo-de-minas-anuncia-ferramenta-de-exercicios-inedita-para-estudantes-e-educadores-da-rede-publica-estadual-de-ensino>. Accessed: Aug. 26, 2025.

AMIEL, T. Open education: shaping environments, practices, and educational resources. In: SANTANA, B.; ROSSINI, C.; PRETTO, N. de L. (org.). *Open educational resources: collaborative practices and public policies*. Salvador: Edufba, 2012. p. 17–33.

ANTUNES, R. Intermittent work and the Uberization of labor at the threshold of Industry 4.0. In: ANTUNES, R. (ed.). *Uberization, digital labor, and Industry 4.0*. São Paulo: Boitempo, 2020. Chap. 1, p. 11–22.

BARBOSA, R. P.; ALVES, N. The reform of secondary education and the platformization of education: expansion of privatization and standardization of pedagogical processes. *E-Curriculum*, São Paulo, v. 21, n. 1, 2023. ISSN 1809-3876. Available at: http://educa.fcc.org.br/scielo.php?pid=S1809-38762023000100120&script=sci_arttext. Accessed: Aug. 26, 2025.

BONILLA, M. H. S. Public policies for digital inclusion in schools. *Motrivivência*, Florianópolis, v. 22, n. 34, p. 40–60, June 2010. Available at: <https://periodicos.ufsc.br/index.php/motrivivencia/article/download/17135/15840>. Accessed: Aug. 8, 2025.

BRAZIL. *Law No. 13,415 of February 16, 2017*. Establishes the reform of secondary education and amends Law No. 9,394 of December 20, 1996. Brasília: Presidency of the Republic, 2017a. Available at: <https://cutt.ly/AnaK7Q4>. Accessed: Aug. 25, 2025.

BRAZIL. *Decree No. 9,204 of November 23, 2017*. Establishes the Innovation Program Connected Education and other provisions. Brasília: Presidency of the Republic, 2017b. Available at: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2017/decreto/D9204.htm. Accessed: Oct. 24, 2025.

BRAZIL. Law No. 15,100 of January 13, 2025. Prohibits students in basic education schools from using portable electronic devices. *Official Gazette of the Union: section 1*, Brasília, DF, Jan. 14, 2025a. Available at: https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2025/lei/15100.htm. Accessed: Aug. 20, 2025.

BRAZIL. Secretariat of Social Communication. *Children, adolescents, and screens: guide on the use of digital devices*. Brasília: Secom, 2025b. Available at: https://www.gov.br/secom/pt-br/assuntos/uso-de-telas-por-criancas-e-adolescentes/guia/guia-de-telas_sobre-usos-de-dispositivos-digitais-versaoweb.pdf. Accessed: Oct. 15, 2025.

CGI.BR – BRAZILIAN INTERNET STEERING COMMITTEE. *Survey on the use of information and communication technologies in Brazilian schools – ICT Education 2023*. São Paulo: CGI.br, 2024. Available at: https://www.cetic.br/media/docs/publicacoes/2/20241119194257/tic_educacao_2023_livro_completo.pdf. Accessed: Aug. 12, 2025.

CGI.BR – BRAZILIAN INTERNET STEERING COMMITTEE. *Survey on Internet use by children and adolescents in Brazil: ICT Kids Online Brazil 2024*. São Paulo: CGI.br, 2025. Available at: https://cetic.br/media/docs/publicacoes/2/20250512154312/tic_kids_online_2024_livro_eletronico.pdf. Accessed: Aug. 13, 2025.

FREIRE, P. *Pedagogy of autonomy*. São Paulo: Paz e Terra, 2015.

GALEANO, E. *Upside down: a primer for the looking-glass world*. Translated by Sérgio Faraco. 4th ed. Porto Alegre: L&PM, 1999.

GROHMANN, R. Platformization of labor: characteristics and alternatives. In: ANTUNES, R. (ed.). *Uberization, digital labor, and Industry 4.0*. São Paulo: Boitempo, 2020. p. 93–110.

HARVEY, D. *The condition of postmodernity: an enquiry into the origins of cultural change*. 25th ed. São Paulo: Loyola, 2014.

LAPA, A.; PINA, A.; MENOU, M. Empowerment and education in digital culture. *Education and Contemporary Culture Journal*, Rio de Janeiro, v. 16, p. 419–438, 2019.

LUCENA, S.; SCHLEMMER, E.; ARRUDA, E. P. The city as a learning space: education and mobility in teacher training. *Revista Tempos e Espaços em Educação*, São Cristóvão, v. 11, n. 1, p. 11–24, 2019. Available at: <https://periodicos.ufs.br/revtee/article/view/10214>. Accessed: Aug. 27, 2025. DOI: <https://doi.org/10.20952/revtee.v11i01.10214>.

MINAS GERAIS. State Department of Education. *Contract No. 9454463: Study Play Editora e Soluções Educacionais Ltda*. Purpose: acquisition of a set of digital books for the four areas of knowledge, with an integrated solution and access to an adaptive platform. Duration: 24 months, starting Mar. 11, 2025. Total value: R\$ 250,000,000.00. Direct contracting, without bidding. Available at: <https://www.transparencia.mg.gov.br/>. Accessed: Aug. 27, 2025.

MOROZOV, E.; BRIA, F. *The smart city: urban technologies and democracy*. São Paulo: Ubu, 2019.

NATHANSON, G.; MORALES, S.; FERREIRA, S. R. S. Data colonialism and the appropriation of digital technologies. *Fronteiras – Media Studies*, v. 24, n. 3, p. 21–34, Sept./Dec. 2022. Unisinos. Available at: <https://doi.org/10.4013/fem.2022.242.03>. Accessed: Aug. 29, 2025.

NIC.BR – BRAZILIAN NETWORK INFORMATION CENTER. *Education in a context of platformization and data economy: problems and concepts*. São Paulo: Brazilian Internet Steering Committee (CGI.br), 2022. E-book. ISBN 978-65-86949-78-0. Available at: https://cgi.br/media/docs/publicacoes/1/20220929112852/educacao_em_um_cenario_de_plataformizacao_e_de_economia_de_dados_problemas_e_conceitos.pdf. Accessed: Aug. 26, 2025.

PRETTO, N. de L. et al. Platformization of education in times of pandemic. In: NIC.BR (ed.). *Education and digital technologies: challenges and strategies for continuity of learning in times of COVID-19*. São Paulo: Brazilian Internet Steering Committee, 2021. p. 221–249.

PREVITALI, F. S.; FAGIANI, C. C. Digital labor and education in Brazil. In: ANTUNES, R. (ed.). *Uberization, digital labor, and Industry 4.0*. São Paulo: Boitempo, 2020. v. 1, p. 217–235.

SANTOS, M. *Spatial economy: critiques and alternatives*. 2nd ed., reprint. São Paulo: Edusp, 2011.

SECRETARIA DE ESTADO DE EDUCAÇÃO DE MINAS GERAIS. The Government of Minas invests R\$40 million in innovative digital tools in education. *News – State Department of Education of Minas Gerais*, Belo Horizonte, Jan. 17, 2025. Available at: <https://www.educacao.mg.gov.br/governo-de-minas-investe-r-40-milhoes-em-ferramentas-digitais-inovadoras-na-educacao/>. Accessed: Aug. 27, 2025.

SECRETARIA DE ESTADO DE EDUCAÇÃO DE MINAS GERAIS. Teachers and students of the Minas state education network gain access to one of the most comprehensive digital content collections in the world. *Education – State Department of Education of Minas Gerais*, Belo Horizonte, July 17, 2024. Available at: <https://www.educacao.mg.gov.br/professores-e-estudantes-da-rede-estadual-de-minas-ganham-acesso-a-um-dos-mais-completos-conteudos-digitais-do-mundo/>. Accessed: Aug. 19, 2025.

UNESCO. *Summary of the Global Education Monitoring Report 2023: technology in education – a tool on whose terms?* Paris: UNESCO, 2023. Available at: <https://bit.ly/2023gemreport>. Accessed: Oct. 17, 2025.

VENDOLA, W. A. *Cities, youth, and school: territory and formal education as pathways for the proper use of digital technologies*. 2025. 120 p. Master's Dissertation (Education) – Federal University of Uberlândia, Uberlândia, 2025. Available at: <http://doi.org/10.14393/ufu.di.2025.289>. Accessed: Aug. 28, 2025.

WOODCOCK, J.; GRAHAM, M. *The gig economy: a critical approach*. Translated by Cristina Camargo. São Paulo: Editora Senac, 2022.

ZUBOFF, S. Surveillance capitalism. *Le Monde Diplomatique Brasil*, Jan. 2019. Available at: <https://diplomatie.org.br/um-capitalismo-de-vigilancia/>. Accessed: Aug. 22, 2025.