ORIGINAL ARTICLE

EDUCAÇÃO & FORMAÇÃO
PROGRAMA DE PÓS GRADUAÇÃO EM EDUCAÇÃO
Universidade Estadual do Ceará (UECE)

REDUFOR
REVISTA EDUCAÇÃO & FORMAÇÃO

The impact of platformisation on Basic Education: Challenges and implications for the educational context

Cláudia Eliane da Matta[i]
Federal University of Itajubá, Itajubá, MG, Brazil

Mariana Alves Ribeiro[ii]
Federal University of Itajubá, Itajubá, MG, Brazil

Luciany Sacramento Pamplona[iii]
Federal University of Itajubá, Itajubá, MG, Brazil

Resumo
The objective of this study is to analyse how digital platforms are inserted and integrated into the daily routine of Basic Education, from the perspective of teachers from three schools in southern Minas Gerais. Based on the concepts of platformisation, datafication, and algorithmic performativity, the qualitative study used focus groups with teachers and identified four main categories: digital platforms, daily practices, connectivity, and the precariousness of teaching work. The results show a predominance of Big Tech technologies, a mostly instrumental use of TDICs, inequality in connectivity, especially in public schools, and an intensification of the precariousness of teaching work. By problematizing the growing dependence on private platforms, the article contributes to the debate on the structural impacts of digitisation on education and highlights the need for policies and practices that expand pedagogical autonomy and criticism in the face of corporate logic.

Palavras-chave
school community; educational technology; teaching labour conditions; uberisation.

Impactos da *plataformização* na Educação Básica: desafios e implicações no contexto educacional

Resumo
O objetivo deste estudo é analisar como plataformas digitais são inseridas e integradas ao cotidiano da Educação Básica, a partir da perspectiva de docentes de três escolas do sul de Minas Gerais. Fundamentado nos conceitos de *plataformização*, *datificação* e *performatividade* algorítmica, o estudo qualitativo utilizou grupos focais com docentes e identificou quatro categorias principais: plataformas digitais, práticas cotidianas, conectividade e precarização do trabalho docente. Os resultados mostram predominância de tecnologias das "*Big Techs*", uso majoritariamente instrumental das Tecnologias Digitais da Informação e Comunicação, desigualdade de conectividade, sobretudo em escolas públicas, e intensificação da precarização do trabalho docente. Ao problematizar a crescente dependência de plataformas privadas, o artigo contribui para o debate sobre os impactos estruturais da digitalização na educação e destaca a necessidade de políticas e práticas que ampliem a autonomia pedagógica e a crítica frente às lógicas corporativas.

Palavras-chave
comunidade escolar; tecnologia educacional; condições do trabalho docente; *uberização*.

El impacto de la plataformización en la Educación Básica: retos e implicaciones para el contexto educativo

Resumen
El objetivo de este estudio es analizar cómo las plataformas digitales se insertan e integran en el día a día de la Educación Básica, desde la perspectiva de los docentes de tres escuelas del sur de Minas Gerais, Brasil. Basado en los conceptos de plataforma, datificación y performatividad algorítmica, el estudio cualitativo utilizó grupos focales con docentes e identificó cuatro categorías principales: plataformas digitales, prácticas cotidianas, conectividad y precarización del trabajo docente. Los resultados muestran el predominio de las tecnologías de las "Big Techs", el uso mayoritariamente instrumental de las Tecnologías Digitales de la información y la Comunicación, la desigualdad en la conectividad, sobre todo en las escuelas públicas, y la intensificación de la precariedad del trabajo docente. Al problematizar la creciente dependencia de las plataformas privadas, el artículo contribuye al debate sobre los impactos estructurales de la digitalización en la educación y destaca la necesidad de políticas y prácticas que amplíen la autonomía pedagógica y la crítica frente a las lógicas corporativas.

Palabras clave
comunidad escolar; tecnología educativa; condiciones laborales docentes; *uberización*.

1 Introduction

The increase in forms of communication has promoted the popularization and dynamization of ways to connect senders and receivers of information in the media. The communication model, previously characterized by a vertical structure dominated by large mass media outlets, has been progressively horizontalized and multifaceted. The growing complexity of these forms of interconnection in a digital information hegemony has produced changes in social structures, especially through the processes of platformisation, datafication[1], and algorithmic performativity (PDPA) (Lemos, 2021).

Platformisation can be defined as the process by which digital platforms begin to structure, mediate, and reorganize different sectors of society, going beyond the field of communication and entertainment (Poell; Nieborg; van Dijck, 2019). Datafication refers to the process of converting various aspects of life in society into data, and is closely linked to the current conditions of information production and circulation, which, in short, involves

[1] The forms "datificação" and "dataficação" are interchangeable, since both are used extensively in literature. From a grammatical point of view, the most appropriate form would be " datification," considering the semantic meaning added by the suffix -ify ("to transform into"), so that "datify" means "to transform into data".

transforming everyday activities into information, recognized as a new form of value (Mayer-Schonberger; Cukier, 2013). The concept of algorithmic performativity refers to the idea that algorithms not only describe or represent reality, but also produce concrete effects on it, shaping behaviors, decisions, and social practices (Gillespie, 2024).

Through processes such as machine learning, we are faced with powerful instruments of control, supervision, and manipulation. As such, we can see the constant concern of financial capital to insert itself into previously unoccupied spaces, creating opportunities for new forms of connection and work. A prime example of this insertion occurred during the Covid-19 pandemic, when large technology companies emerged with quick and supposedly free proposals, especially in offering educational solutions. (Gonsales, 2024).

The interest in entering educational spaces is no coincidence, since public education is a historical setting for power struggles (Libâneo, 2012). Still considering the pandemic context, "[…] it is possible to infer that there was no consideration given to having any guarantee on the part of companies regarding transparency in the use of teacher and student data" (Gonsales, 2024, p. 66), which points to the need for reflection on how digital platforms were introduced into the education sector and what the implications of these partnerships are for education as a training institution.

Thus, this study aims to analyze, from the teachers' perspective, the use of digital platforms in basic education in schools in southern Minas Gerais, as well as the challenges and impacts resulting from this use.

The study adopted a qualitative approach, seeking to understand how teachers perceive the use of digital platforms in Basic Education. To this end, we used qualitative data from a study conducted by the Research Group on "Technologies and Digital Culture in Science Education" (TeCDEC).

Participants were selected based on a direct invitation to teachers from schools in southern Minas Gerais, prioritizing diversity in terms of length of experience, subjects taught, and familiarity with digital platforms. Three focus groups were formed. The treatment and analysis of the data followed the proposals of Yin (2016), ensuring rigor in the collection, analysis, and interpretation of qualitative data, which resulted in four main thematic categories: (a) digital platforms present in the school context; (b) daily practices

in the use of platforms; (c) connectivity; and (d) precariousness of teaching work in the digital world.

The importance of this study lies in its approach to a contemporary issue that is relevant to education and society, as well as in its effort to understand the specific contextual factors that can contribute to a broader understanding of the challenges and implications of platformisation in education.

2 Theoretical basis

The popularization of Digital Information and Communication Technologies (TDIC) in everyday life, coupled with the growing impact of digital media and networks, has allowed platforms to take center stage in contexts where they previously did not occupy a prominent role. In revisiting the origins of these platforms, Poell, Nieborg, and van Dijck (2019) trace the beginning of this phenomenon to the early 21st century, a period when platforms were perceived as promising digital structures, particularly in the administrative and game development sectors.

Platforms can be defined as programmable or reprogrammable digital infrastructures that enable and configure personalized interactions between end users and partners, organized through continuous data collection, algorithmic processing, monetization, and circulation of this data (Poell; Nieborg; van Dijck, 2019). Digital platforms can also be understood as "[…] networks orchestrated by a controller, which can be a company or any other organization, such as the State or the academic community" (Chiarini *et al.*, 2023, p. 7). These platforms include various social media formats that allow users to share and communicate information in multiple formats, such as videos, images, audio, and text, as well as variations depending on their objectives.

Inserted in a hegemonic context of exploitation and profit, we can see that platforms can act in favor of market demands for communication between the market and end consumers. Today, even more evident through PDPA processes, platforms not only constitute structures for the functioning of institutions such as banks and transportation companies, but also reconfigure them as part of a new social, political, and economic model. The reconfiguration of this corporate profile has brought about changes,

especially in the world of work, a topic explored in depth by Scholz (2016) and, in Brazil, by Antunes (2023).

In this context of a society in which many aspects of language, discourse, and culture have been transformed into data, called a datafied society (van Dijck, 2017), the field of education has become a target of disputes and a territory of interest for colonization by large technology companies. This fact was particularly noticeable during the Covid-19 pandemic, when corporations such as Google and Microsoft pioneered the provision of practical solutions and supposedly free platforms to educational institutions (Gonsales, 2024; Vitorino; Oliveira; Alves, 2023).

Platformisation has impacted traditional forms of teaching and learning, not only with the aim of simplifying processes, but also of collecting large amounts of personal data, such as information about student behavior and academic performance (Gonsales; Lima, 2024). This data is often used for commercial purposes, leading to the creation of profiles and targeted advertising, which raises concerns about privacy and security. Another issue raised is the possible loss of pedagogical autonomy of educational institutions as they become dependent on technological solutions created by companies whose main objective is profit, which may result in a standardized education model that limits the diversity of teaching (Gonsales; Lima, 2024; Meira, 2021; Wilke; Feijó, 2023).

Influencing the development of the economic sector, large technology companies, known as “Big Tech” or by the acronym GAFAM — Google, Amazon, Facebook, Apple, and Microsoft — play a central role in the global economic landscape and are considered digital monopolies. It should be noted that Facebook, Instagram, and WhatsApp are owned by Meta.

The main characteristic that makes these companies digital monopolies is their control of the technology market. In this sense, Diniz and França (2023, p. 2) state that “[…] digital monopolies have as their main business model the monetization of their users’ personal data”. These corporations, headquartered in Silicon Valley in the United States, hold a large concentration of technological power, which intensifies the dependence of countries in the Global South on so-called developed nations and highlights how the digital economy continues to reproduce historical inequalities and disputes, as pointed out by Lemos (2021).

Denouncing an ideology that presents itself as neutral and beneficial, Santos (2020) warns us about the structural subordination of workers, including teachers, to digital platforms. Promises of autonomy and freedom, often propagated, prove to be illusory, while reinforcing mechanisms of control.

Considering the historical devaluation of the teaching profession in Brazil, the view of teachers as mere service providers in an increasingly commercialized educational system is worrying. This scenario is exacerbated on teaching platforms, where teachers face discursive harassment (Cavazzani; Santos; Lopes, 2024) and find themselves suffocated by algorithms. The aggressive commercialization of education precariousizes teachers' working and living conditions and, in this sense, platforms end up intensifying problems rather than meeting pedagogical demands, as pointed out by Cavazzani, Santos, and Lopes (2024).

Therefore, it is necessary to understand the complexities involved in these platforms governed by algorithmic management and, from a broader perspective, the new forms of labor exploitation and capital accumulation that subordinate the teaching profession.

3 Methodological approach

The paper takes a qualitative approach, exploring participants' perceptions and experiences regarding the insertion of large technology companies into the educational context through digital tools and platforms. The qualitative methodology was chosen due to its ability to capture nuances, interpretations, and meanings attributed by participants to the phenomenon under investigation (González, 2020).

In this context, this study presents a snapshot of the research conducted by the TeCDEC research group, which collected data in three schools in southern Minas Gerais, prioritizing diversity in terms of length of experience, subjects taught, and familiarity with digital platforms. Three focus groups were formed, ensuring space for collective discussion and sharing of experiences and, at the same time, enabling the observation of the dynamics of consensus and divergence among participants.

The participating schools include two public institutions (E1 and E2) and one private institution (E3). Public school E1, with approximately 587 students enrolled, is the only school offering secondary education in a municipality with 14,000 inhabitants (IBGE, 2023). Public school E2, located in a neighboring city with just over 9,000 inhabitants (IBGE, 2023), serves approximately 737 students, playing a central role in the local community. Private school E3, located in a hub city with 93,000 inhabitants (IBGE, 2023), offers early childhood, elementary, and secondary education to approximately 569 students, playing a significant role in the region.

Focus groups were adopted as the data collection method, as the topic of platformisation research is complex and this strategy makes it possible to "[…] discover people's perceptions of what generates or prevents a behavior, as well as their reaction to different ideas, behaviors, products, or services" (Escobar; Bonilla-Jimenes, 2017, p. 53, our translation). According to these authors, this process consists of ten steps: (1) establishing objectives; (2) planning the research; (3) defining the schedule; (4) defining the focus group participants; (5) selecting moderators; (6) preparing questions; (7) defining the location and time for the focus group session; (8) logistics; (9) conducting the session; and (10) analyzing the information.

Participants were selected based on direct invitations to school teachers. Interviews were conducted in October and November 2023. Three focus groups were formed, one per school. Sixteen teachers from school E1, six from school E2, and 14 from school E3 participated in the study. Participation was voluntary, and the Informed Consent Forms ("ICF") were duly presented, discussed, and signed by the participants, represented in this text as P1, P2… P16 to preserve their identities.

After the sessions, the focus group discussions were transcribed. Data processing and analysis followed Yin's (2016) proposals, ensuring rigor in the collection, analysis, and interpretation of qualitative data. The first phase consisted of compiling the data. The data were then coded based on thematic categories, which can be predefined (deductive) or emerging (inductive). In this study, the thematic categories emerged from the analysis. Subsequently, the data were recomposed and regrouped based on the identification of themes emerging from the participants' statements. Four themes were mapped out and will be discussed in this article: digital platforms present in the school

context; daily practices in the use of platforms; connectivity; and the precarious nature of teaching work in the digital world.

The choice of these categories sought to reflect both the existing literature on education and technologies and the experiences reported by teachers, allowing us to understand the relationship between technological innovations, pedagogical practice, and working conditions.

4 Results and discussion

Based on the transcription of the participants' statements, a careful reading was carried out to identify subjective elements and interpretations, as expected in qualitative research (González, 2020). This reading allowed the identification of issues relevant to the study's objectives, as well as enabling the identification of recurring and/or divergent themes among the contexts analyzed. The data analysis resulted in four main categories (Figure 1):

- Digital platforms in the school context: identification of technologies used, frequency, and purposes.
- Daily practices in the use of platforms: ways in which teachers incorporate tools into pedagogical activities.
- Connectivity: problems related to technical support and unequal access.
- Precarization of teaching work: impacts of digital demands on workload, autonomy, and working conditions.

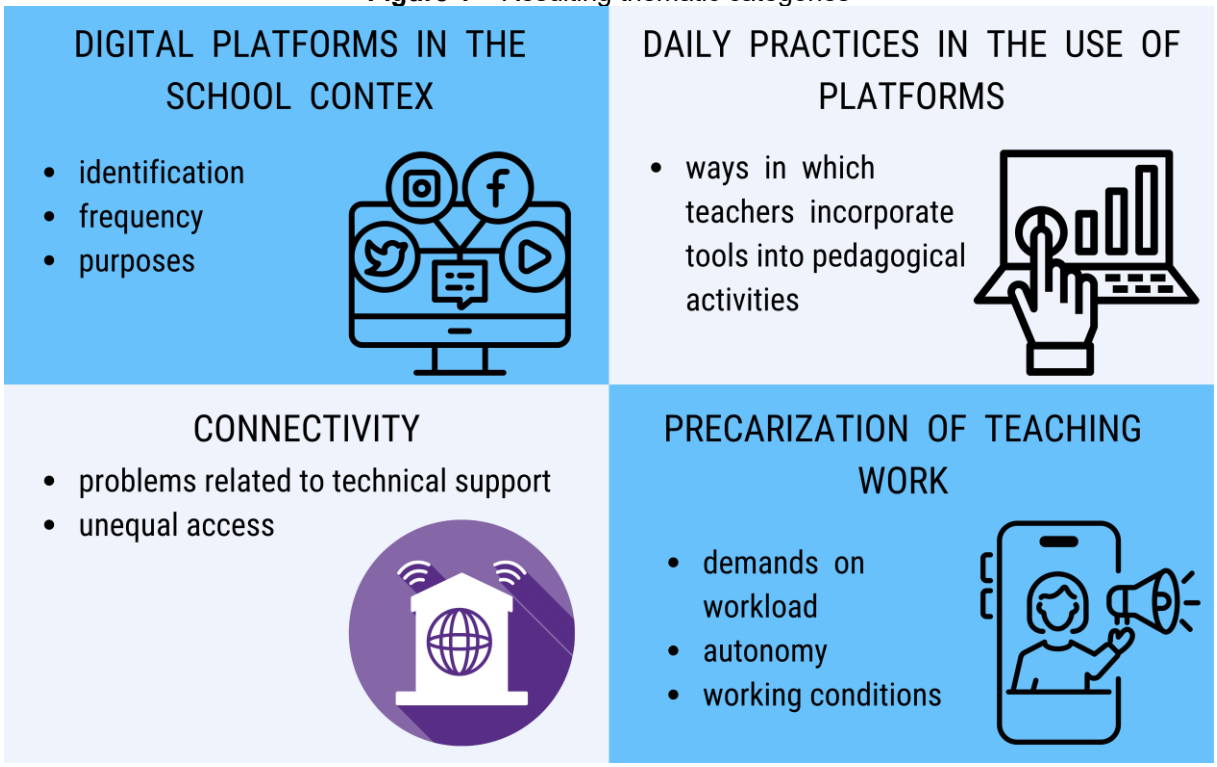
The first thematic category that emerges from the teachers' statements refers to digital platforms present in the school context. The reports show that the most widely used are Google Workspace for Education (Alphabet-Google), WhatsApp (Meta), and a private education system that offers integrated educational solutions and provides a specific platform for students, mentioned only by school E3. Among public schools, the use of the Google platform stood out, with access described as prevalent but challenging, since students are not accustomed to using it, as pointed out:

> *institutional email. It was used during the pandemic. With very little success.* ***Students have a lot of difficulty accessing institutional email****. They forget their*

> *passwords [...]. So, it's a way for us to share files. But it's* ***much easier for us to use WhatsApp****. So, it's the way we communicate, we have much closer contact with them* (E1P2, emphasis added).

> ***They (the students) also have a lot of difficulty, or don't want to use (the institutional email)****, or are not encouraged to use it, they are not mature enough to use it. So, they don't use the tool as they should, and then, of course, it falls into the routine, into the content, into the work, so that's the perception that is generated* (E2P1, emphasis added).

Figure 1 – Resulting thematic categories



Fonte: The authors (2025).

The private school (E3) has a workbook-based teaching system linked to a specific platform. However, in the excerpts presented, we note that teachers predominantly use Google and Meta (Instagram) platforms because they are easier to use and communicate with, making classes more interactive and flexible, as shown in the following excerpts:

> *Here in seventh grade, we are doing a project this year with* ***Instagram****. It's like a classroom newspaper, so they record school events and post them on Instagram* (E3P5, emphasis added).

> *Like my classmates, I also use* ***Google Drive*** *a lot. YouTube is also very important to me* (E3P6, emphasis added).

The use of these platforms, especially during the COVID-19 pandemic, has become part of everyday school life. This fact becomes a problem when considering the massive collection of data by these companies, since "[...] the data capture strategy invariably relies on free offers, since profit does not come from the sale of the service, but rather from the monopoly of data" (Gonsales, 2024, p. 62).

Education thus becomes a central field of dispute for platforms, as it encompasses a significant number of potential users. Platforms record demographic information, habits, preferences, and the use of the platform itself "[…] in order to create segmented profiles or predict behaviors" (D'Andréa, 2020, p. 37). In this sense, the impact and, above all, the challenges of datafication on students in basic education need to be discussed more broadly.

In addition to the implications arising from data collection and information manipulation, caution is also needed when considering that social media is used openly by families and young people, including in relation to school activities, without any concern for addressing media literacy to avoid the potential harmful effects of its use (Livingstone; Mascheroni; Staksrud, 2017).

The second thematic category that emerges from the subjects' statements refers **to the daily practices of using platforms** in the school context. It was possible to observe in the reports presented that teachers make use, mainly in an instrumental way, of the resources available on the platforms. For example, they create forms for assessments, use WhatsApp or institutional email to send texts, or use the videos indicated in the handouts to illustrate the content, as can be seen in the following excerpts:

> *[...] The teachers prepare* ***the form*** *(Google Forms) and we (the students) take it to the computer lab to take the exams, the tests [...]* (E1P5, emphasis added).

> *[...]* ***you don't need to copy anything, you don't need to hand in any papers, and you can do it on the computer and send it to me****. And then there were some who had a certain difficulty. Even though they are very familiar with cell phones. But it's mostly WhatsApp, instant messaging, social media. This issue of putting together texts. They still have a certain difficulty with that kind of thing. As much as was mentioned in the issue of access to institutional email. There were some who did not know what their institutional email address was. There were some who did not know what the password was* (E1P7, emphasis added).

> *Many pages of the workbook have a **QR code that links to YouTube**. So in the school workbook, [...] about ninety percent of my class goes to YouTube* (E3P2, emphasis added).

It is worth noting that, at the private school E3, the workbook used by teachers contains references to videos hosted on YouTube. This automatic referral may represent a limited or reductionist use of the resources available on the platforms. “Practices continue to be based on the logic of content transmission and make little use of the collaborative, creative potential characteristic of digital technologies” (Cravo *et al*., 2024, p. 2), that is, the content is only exemplified on YouTube when it could be used as a pedagogical tool for students’ own audiovisual representations.

Alongside using platforms from big tech companies, teachers also mentioned that they use apps in their professional activities. This practice points to an integrated use of ICT, with a pedagogical purpose in the context of the subjects that teachers teach. Here are some examples:

> *I try to introduce them to GeoGebra. [...] My proposal is always to **use programs that facilitate (the understanding of)** the mathematics curriculum content [...]* (E1P2, emphasis added).

> *I usually use **Padlet**, do you know it? Well, the students love it, **because I use a wall**, [...] at one point, I called someone from another country to talk about their culture. [...] this person from Canada. And then, the students went on the Padlet platform and thanked her [...] in English, because I am an English teacher. So, it's really cool, they love it* (E2P1, emphasis added).

> *I'm also researching other platforms that involve **physics simulation**. [...] The most common is PhET [...]* (E3P6, emphasis added).

Another thematic category that emerges in the subjects' reports is limited connectivity, especially in the statements made by public school teachers. It should be noted that in schools in Minas Gerais, requests for software installation and equipment maintenance are made by the Educational Technology Center (NTE), located in the State Regional Education Secretariats. The following account describes how the Internet works and how equipment maintenance is carried out:

> ***There are times when Wi-Fi will be available. If a teacher requests it, it may be unlocked**. I had a problem because the network was configured by the previous administration. Then there was a change in administration, and the current administration did not have access. So we requested the NTE. They take a long time to do all the maintenance* (E1P2, emphasis added).

This situation exposes problems such as unequal access to educational technologies. While public school students face access difficulties, those in private institutions do not have this limitation. The latter generally have laboratories equipped with computers and Wi-Fi available to the entire school community. According to the 2022 ICT Education survey, 93% of public institutions (municipal, state, and federal) and 99% of private institutions in basic education have Internet access (Núcleo de Informação e Coordenação do Ponto Br [NIC.BR], 2023). However, the lack of infrastructure for Internet access in schools remains the main reason for disconnection, as pointed out by the same survey. Furthermore, corroborating the findings of this study, expanding Internet access in schools is a critical demand for educational policies aimed at expanding connectivity, especially with regard to the availability of network access for students in educational activities. For teachers in public elementary and secondary schools, "[…] the quality of Internet connection speed (84%) and the insufficient number of computers per student (80%) were among the main barriers to the use of digital technologies in teaching and learning activities" (NIC.BR, 2024, p. 76).

This disparity can compromise media literacy among students in schools that do not have access to the Internet or where access is limited. It is known that media literacy can foster critical reading of the media so that the manipulation strategies present in disinformation networks become clear (Nagumo; Teles; Silva, 2022), that is, in this case, inequalities go beyond the issue of access, also compromising the formation of the subject in a broader sense.

The last thematic category that emerged from the focus groups was the precariousness of teaching work due to platformisation. We live in an era of speed and exhaustion characteristic of the neoliberal system that governs the workforce today, and in this context, the pressure to achieve goals and overcome obstacles leads individuals to a productive daily life focused on multiple tasks, as pointed out by Silva (2024).

Embedded in an economic system of inequality and exploitation, the precariousness of teaching work "[…] is a phenomenon that has been developing in Brazil since the military regime and has been intensifying since the 1990s to the present day" (Piovezan; Dal Ri, 2016, p. 2). Thus, the following excerpts illustrate how the

process of platformisation of teaching work, intensified during the pandemic, manifests itself in pedagogical practice.

> *I think every platform optimizes the lives of teachers and students, but it has to be popular, accessible, and pragmatic, which is why* ***WhatsApp*** *works* (E1P15, emphasis added).
>
> *The challenge (during the pandemic) was also Conexão.* ***We were on WhatsApp and suddenly we were forced to switch to Conexão****. I spent the whole night, you know? Adapting, getting to know Conexão so I could pass it on to the students. Then there were students who had difficulties. I even went to their homes. [...] It was a challenge. It was a turning point for teachers here. Definitely* (E2P3, emphasis added).
>
> *[...] things at school are very dynamic.* ***At the same time that I'm talking to the supervisor, I'm talking to the student on WhatsApp****. So, whether we like it or not, we no longer have that barrier* (E3P8, emphasis added).

It should be noted that “Conexão”, mentioned by E2P3, is a system that the state of Minas Gerais used during the pandemic to access educational materials and distance learning broadcast by Rede Minas during the Remote Independent Study Regime (REANP). Although the application has undergone some redesigns, progressively expanding the possibilities for interaction through the Google Classroom Platform, as described in the Guide of the Minas Gerais State Department of Education (Minas Gerais, 2024), familiarization with the tool remained difficult for both teachers and students.

Although WhatsApp can be useful for facilitating communication and collaboration, it can exacerbate issues such as student distraction, lack of concentration, decreased performance, and difficulty maintaining clear boundaries between personal life and the educational environment (Yilmazsoy; Kahraman; Köse, 2020). These authors argue that without adequate supervision and clear pedagogical strategies, students may have difficulty controlling the time they spend messaging, which could result in neglecting schoolwork, affecting their comprehension levels, learning skills, and academic performance.

In addition, it is well known that teachers face excessive workloads. The expectation that teachers are always available, even outside school hours, and the request that they share their personal cell phone numbers for contact via WhatsApp, both by students and school administrators, reflect a reality that aligns with the concept of “uberization” (Antunes, 2020). This situation compromises not only the mental health of educators, but also the quality of education they can offer.

The Uberization of teaching work is in line with a scenario of devaluation, precarious working conditions, and teaching contracts that are increasingly weak — temporary, substitute — which plague education (Moura; Mendes Segundo; Aquino, 2021). According to the authors, this process weakens the unity of teachers, subjecting them to the precariousness and disqualification of educational work and aiming at their possible requalification in line with the culture of productivity and profit. On this point, Antunes (2020) mentions that the Ribeirão Preto (SP) City Hall intended to hire teachers on a casual basis, without guaranteeing labor rights, creating a kind of “Uber for education”, nicknamed by teachers as “teacher delivery”.

Still on this topic, WhatsApp is not an educational tool, as it was not developed to enable school activities. Its main function is instant communication, geared toward informal conversations, meaning it does not offer the specific features that educational platforms need, such as content management, student assessment, or tools for collaboration on educational projects. According to Moreira and Trindade (2017), it lacks important features such as task organization, creation of collaborative workspaces, or mechanisms for monitoring student progress.

Some negative results of using this platform in education are pointed out by Zan (2019), such as students using it outside of class hours or using inappropriate language. It has been found that the use of WhatsApp during educational processes requires a high level of responsibility. After all, it is necessary to view all correspondence between students, check for possible errors, and respond to all messages sent or received, which makes it unfeasible for teachers with multiple classes.

Being present on WhatsApp gives the impression that teachers are available 24 hours a day, seven days a week, to provide immediate feedback on questions and opinions that arise in group discussions. This can lead to digital fatigue, with a series of negative emotional responses due to excessive use of digital media, such as tiredness, exhaustion, frustration, and disinterest in communication, as stated by Zheng and Ling (2021). Productivity, learning ability, and memory retention can also be impaired due to increased use of social media platforms.

The growing use of WhatsApp in the educational context can generate technostress that affects the mental health of these professionals. Technostress, also

known as technological stress, "[…] is a negative psychological state caused by excessive or inappropriate use of information and communication technologies" (Demboski; Silva; Costa, 2024, p. 1).

Based on these findings, we developed reflections on teacher training from the perspective of algorithmic literacy, analyzing how digital skills incorporate implications associated with the functioning of algorithms. This understanding is in line with Moylan and Code (2023), who highlight the importance of this literacy in informing critiques of how teacher training can both reproduce and resist algorithmic logic.

The platforms are intertwined with different governance regimes already consolidated in education. The same technical processes used for data collection within the administrative regime can simultaneously support the exercise of professional judgment by educators and, at the same time, generate metadata that supplies (Nichols; Dixon-Román, 2024).

Thus, the findings of this research address fundamental issues that go beyond the simple use of platforms in education. Discussions about unequal access, teaching work in the digital world, and the need for transparent platforms are essential for a more equitable educational future. These reflections need to be present in the initial and continuing training of teachers. After all, it is not possible to talk about media literacy without addressing issues such as accessibility, inequality, and labor exploitation in the digital world. For education to be more emancipatory in this context, it is important to use platforms designed for this purpose, which offer tools appropriate for academic and pedagogical development, as pointed out by Pretto and Bonilla (2022).

5 Final considerations

This paper sought to analyze, from a teaching perspective, the use of digital platforms in basic education in schools in southern Minas Gerais and the impacts of such use. The results show that, although schools have different contexts, the adoption of digital platforms is a reality, even though their use faces challenges, such as students' lack of familiarity with the platforms and limited internet connection due to infrastructure issues.

We observed that digital information and communication technologies are often used instrumentally in pedagogical practices, but that teachers demonstrate an effort to integrate technology into teaching in a creative and meaningful way, as reported in the use of applications such as Padlet, PhET, and GeoGebra.

The normalization of teachers always being available and connected, due to the use of WhatsApp in the school environment, highlights a phenomenon of precariousness in education. This situation requires critical reflection on working conditions and the value placed on teachers.

Teacher training requires digital skills that incorporate implications related to the functioning of algorithms, platformisation, and datafication in the educational context. In this way, teachers can question and resist algorithmic logic. The results of this research indicate that reflections on teacher training should go beyond the instrumental use of platforms, considering dimensions such as unequal access, the precarious nature of teaching work, and the need for greater transparency in digital processes.

In light of what has been presented and analyzed, we hope that new approaches will emerge and contribute to critical reflection on the implications and challenges of digital platforms in the school context, especially discussions that address the relevance of developing strategies toward digital autonomy and sovereignty.

6 References

ANTUNES, R. Uberização do trabalho e capitalismo de plataforma: uma nova era de desantropomorfização do trabalho?. *Análise Social*, Lisboa, v. 58, n. 248, p. 512-532, 2023. DOI: 10.31447/AS00032573.2023248.04. Available at: https://revistas.rcaap.pt/analisesocial/article/view/33535. Accessed on: Mar. 2, 2025.

ANTUNES, R. *Uberização, trabalho digital e indústria 4.0*. São Paulo: Boitempo, 2020.

CAVAZZANI, A. L. M.; SANTOS, R. O; LOPES, L. F. Precarização do trabalho docente: plataformas de ensino no contexto da fábrica difusa. *Cadernos Metrópole*, São Paulo, v. 26, n. 59, p. 209-228, 2024. DOI: 10.1590/2236-9996.2024-5910. Available at: https://www.scielo.br/j/cm/a/Kc3k8J3Yt9D5qpFYxhyVt6S/?format=html&lang=pt. Accessed on: Mar. 2, 2025.

CHIARINI, T.; SILVA NETO, V. J.; PEREIRA, L. S.; SZIGETHY, L. *Plataformas digitais*: mapeamento semissistemático e interdisciplinar do conhecimento produzido nas

universidades brasileiras. Brasília, DF: Instituto de Pesquisa Econômica Aplicada (IPEA), 2023. Available at: https://repositorio.ipea.gov.br/handle/11058/11677. Accessed on: Mar. 2, 2025.

CRAVO, R. C.; MINHO, M. R. S.; PINHEIRO, M. T. F.; NONATO, E. R. S. Apropriações das tecnologias digitais na prática docente após ensino remoto emergencial: uma análise de emergência de conceitos. *Revista Portuguesa de Educação*, Braga, v. 37, n. 1, p. 1-26, 2024. DOI: 10.21814/rpe.31164. Available at: https://revistas.rcaap.pt/rpe/article/view/31164. Accessed on: Mar. 2, 2025.

D'ANDRÉA, C. F. B. *Pesquisando plataformas online*: conceitos e métodos. Salvador: EDUFBA, 2020. Available at: https://repositorio.ufba.br/handle/ri/32043. Accessed on: Mar. 2, 2025.

DEMBOSKI, G.; SILVA, R. C. S.; COSTA, C. A formação docente como estratégia para prevenir o tecnoestresse e a violação de limites trabalho-família em professores da educação básica. *Educação & Formação*, Fortaleza, v. 9, e13479, 2024. Available at: https://revistas.uece.br/index.php/redufor/article/view/13479. Accessed on: Mar. 2, 2025.

DINIZ, J. B. R.; FRANÇA, R. S. Tecnologias a serviço de quem? Um diálogo entre Álvaro Vieira Pinto, Evgeny Morozov, Paulo Freire e Sérgio Guimarães sobre capitalismo de vigilância na educação. *Texto Livre*, Belo Horizonte, v. 16, p. 1-11, 2023. DOI: 10.1590/1983-3652.2023.42201. Available at: https://www.scielo.br/j/tl/a/fYdfRJFqgr7QbWV3dd6Y4sm/?format=html&lang=pt. Accessed on: Mar. 2, 2025.

ESCOBAR, J.; BONILLA-JIMENES, F. I. Grupos focales: una guía conceptual y metodológica. *Cuadernos Hispanoamericandos de Psicología*, Bogotá, v. 9, n. 1, p. 51-67, 2017. Available at: https://gc.scalahed.com/recursos/files/r161r/w25267w/guiagruposfocales.pdf. Accessed on: Mar. 2, 2025.

GILLESPIE, T. The relevance of algorithms. *In*: GILLESPIE, T.; BOCZKOWSKI, P. J.; FOOT, K. A. (org.). *Media tecnologies*. Cambridge: The MIT, 2024. p. 167-194.

GONSALES, P. Parcerias e assimetrias. *In*: EVANGELISTA, R. (org.). *Educação em um cenário de plataformização e de economia de dados*. São Paulo: Comitê Gestor da Internet no Brasil, 2024. p. 61-108. Available at: https://cgi.br/publicacao/educacao-em-um-cenario-de-plataformizacao-e-de-economia-de-dados-parcerias-e-assimetrias/. Accessed on: Mar. 2, 2025.

GONSALES, P.; LIMA, S. H. B. Problemas e conceitos. *In*: EVANGELISTA, R. (org.). *Educação em um cenário de plataformização e de economia de dados*. São Paulo: Comitê Gestor da Internet no Brasil, 2024. p. 21-60. Available at: https://cgi.br/media/docs/publicacoes/1/20220929112852/educacao_em_um_cenario_de

_plataformiza%C3%A7ao_e_de_economia_de_dados_problemas_e_conceitos.pdf. Accessed on: Mar. 2, 2025.

GONZÁLEZ, F. E. Reflexões sobre alguns conceitos da pesquisa qualitativa. *Revista Pesquisa Qualitativa*, São Paulo, v. 8, n. 17, p. 55-183, 2020. DOI: 10.33361/RPQ.2020.v.8.n.17.322. Available at: https://editora.sepq.org.br/rpq/article/view/322. Accessed on: Mar. 2, 2025.

IBGE. *Relação da População dos Municípios enviada ao TCU em 2023*. Rio de Janeiro: IBGE, 2023. Available at: https://ftp.ibge.gov.br/Informacoes_Gerais_e_Referencia/Relacao_da_Populacao_dos_Municipios_para_publicacao_no_DOU_em_2023/POP_TCU_2023_Municipios_POP2022_Malha2023.pdf. Accessed on: Mar. 2, 2025.

LEMOS, A. *A tecnologia é um vírus*: pandemia e cultura digital. Porto Alegre: Sulina, 2021.

LIBÂNEO, J. C. O dualismo perverso da escola pública brasileira: escola do conhecimento para os ricos, escola do acolhimento social para os pobres. *Educação e Pesquisa*, São Paulo, v. 38, n. 1, p. 13-128, 2012. DOI: 10.1590/S1517-97022011005000001. Available at: https://www.scielo.br/j/ep/a/YkhJTPw545x8jwpGFsXT3Ct/?format=pdf&lang=pt. Accessed on: Sept. 12, 2025.

LIVINGSTONE, S.; MASCHERONI, G.; STAKSRUD, E. European research on children's internet use: Assessing the past and anticipating the future. *New Media & Society*, [*S. l.*], v. 20, n. 3, p. 1103-1122, 2017. DOI: 10.1177/1461444816685930. Available at: https://journals.sagepub.com/doi/abs/10.1177/1461444816685930. Accessed on: Mar. 2, 2025.

MAYER-SCHONBERGER, V.; CUKIER, K. *Big data*: A revolution that will transform how we live, work, and think. New York: Houghton Mifflin Harcourt, 2013.

MEIRA, M. V. F. O cerco à autonomia das escolas: as plataformas eletrónicas na administração da educação. *Revista Portuguesa de Educação*, Braga, v. 34, n. 1, 2021. DOI: 10.21814/rpe.18365. Available at: https://revistas.rcaap.pt/rpe/article/view/18365. Accessed on: Mar. 2, 2025.

MINAS GERAIS. *Guia prático*: aplicativo Conexão Escola. Belo Horizonte: Secretaria de estado de Educação de Minas Gerais, 2024. Available at: https://seliga.educacao.mg.gov.br/conexaoescola. Accessed on: Mar. 2, 2025.

MOREIRA, J. A.; TRINDADE, D. S. O WhatsApp como dispositivo pedagógico para a criação de ecossistemas educomunicativos. *In*: PORTO, C.; OLIVEIRA, K. E.; CHAGAS, A. (org.). *WhatsApp e educação*: entre mensagens, imagens e sons. Salvador: EDUFBA,

2017. p. 49-68. Available at: https://books.scielo.org/id/r3xgc/pdf/porto-9788523220204.pdf. Accessed on: Mar. 2, 2025.

MOURA, L. R.; MENDES SEGUNDO, M. D.; AQUINO, C. A. B. Do docente efetivo ao docente uberizado: a precarização contratual do professor no Brasil. *Trabalho & Educação*, Belo Horizonte, v. 30, n. 3, p. 67-85, 2021. DOI: 10.35699/2238-037X.2021.29404. Available at: https://periodicos.ufmg.br/index.php/trabedu/article/view/29404. Accessed on: Mar. 2, 2025.

MOYLAN, R.; CODE, J. Algorithmic futures: An analysis of teacher professional digital competence frameworks through an algorithm literacy lens. *Teachers and Teaching*: Theory and Practice, [*S. l.*], v. 30, n. 4, p. 1-19, 2023. DOI: 10.1080/13540602.2023.2263732. Available at: https://www.tandfonline.com/doi/full/10.1080/13540602.2023.2263732. Accessed on: Sept. 12, 2025.

NAGUMO, E.; TELES, L. F.; SILVA, L. A. Educação e desinformação: letramento midiático, ciência e diálogo. *Educação Temática Digital*, Campinas, v. 24, n. 1, p. 220-237, 2022. DOI: 10.20396/etd.v24i1.8665292. Available at: http://educa.fcc.org.br/scielo.php?script=sci_arttext&pid=S1676-25922022000100220. Accessed on: Mar. 2, 2025.

NIC.BR. *Pesquisa sobre o uso das tecnologias de informação e comunicação nas escolas brasileiras*: TIC Educação São Paulo: Comitê Gestor da Internet no Brasil, 2024. Available at: https://cetic.br/media/docs/publicacoes/2/20241119194257/tic_educacao_2023_livro_completo.pdf. Accessed on: Mar. 2, 2025.

NICHOLS, T. P.; DIXON-ROMÁN, E. Platform governance and education policy: Power and politics in emerging edtech ecologies. *Educational Evaluation and Policy Analysis*, [*S. l.*], v. 46, n. 2, p. 309-328, 2024. DOI: 10.3102/01623737231202469. Available at: https://journals.sagepub.com/doi/10.3102/01623737231202469. Accessed on: Sept. 12, 2025.

PIOVEZAN, P. R.; DAL RI, N. M. A precarização do trabalho docente no estado de São Paulo: vinte anos de reformas. *Educação Temática Digital*, Campinas, v. 18, n. 1, p. 178-197, 2016. DOI: 10.20396/etd.v18i1.8635567. Available at: https://periodicos.sbu.unicamp.br/ojs/index.php/etd/article/view/8635567. Accessed on: Mar. 2, 2025.

POELL, T.; NIEBORG, D.; VAN DIJCK, J. Platformisation. *Internet Policy Review*, [*S. l.*], v. 8, n. 4, p. 1-14, 2019. DOI: 10.14763/2019.4.1425. Available at: https://policyreview.info/concepts/platformisation. Accessed on: Mar. 2, 2025.

PRETTO, N. L.; BONILLA, M. H. S. Tecnologias e educações: um caminho em aberto. *Em Aberto*, Brasília, DF, v. 35, n. 113, p. 141-163, 2022. DOI: 10.24109/2176-6673.emaberto.35i113.5085. Available at: https://emaberto.inep.gov.br/ojs3/index.php/emaberto/article/view/5085. Accessed on: Mar. 2, 2025.

SANTOS, B. S. *A cruel pedagogia do vírus*. São Paulo: Boitempo, 2020. Available at: https://www.abennacional.org.br/site/wp-content/uploads/2020/04/Livro_Boaventura.pdf. Accessed on: Mar. 2, 2025.

SCHOLZ, T. *Platform cooperativism*: Challenging the corporate sharing economy. Rosa Luxemburg Siftung, 2016. Available at: https://rosalux.nyc/wp-content/uploads/2020/11/RLS-NYC_platformcoop.pdf. Accessed on: Mar. 2, 2025.

SILVA, I. M. M. Cronotopos na cibercultura: tecnologias, letramentos digitais e formação docente. *Educação Temática Digital*, Campinas, v. 26, p. 1-21, 2024. DOI: 10.20396/etd.v26i00.8672132. Available at: https://periodicos.sbu.unicamp.br/ojs/index.php/etd/article/view/8672132. Accessed on: Mar. 2, 2025.

VAN DIJCK, J. Foreword. *In*: SCHÄFER, M. T.; VAN ES, K. *The datafied society*: Studying culture through data. Amsterdam: Amsterdam University, 2017, p. 11-12. Available at: https://www.jstor.org/stable/j.ctt1v2xsqn. Accessed on: Sept. 12, 2025.

VITORINO, C. S.; OLIVEIRA, A. T. R.; ALVES, L. R. G. Apropriações e usos das plataformas digitais de ensino pelos docentes no Brasil: uma revisão sistemática de literatura. *Cenas Educacionais*, Caetité, v. 6, n. 16483, p. 1-20, 2023. DOI: 10.5281/zenodo.7891006. Available at: https://revistas.uneb.br/index.php/cenaseducacionais/article/view/16483. Accessed on: Mar. 2, 2025.

WILKE, V. C. L.; FEIJÓ, M. S. Aspectos da plataformização educacional na educação básica brasileira: a “Escola do Cansaço” na era do Big Data. *Logeion*: Filosofia da Informação, v. 10, p. 418-437, 2023. DOI: 10.21728/logeion.2023v10nesp2.p418-437. Available at: https://revista.ibict.br/fiinf/article/view/6780. Accessed on: Mar. 2, 2025.

YILMAZSOY, B.; KAHRAMAN, M.; KÖSE, U. Negative aspects of using social networks in education: A brief review on WhatsApp example. *Journal of Educational Technology and Online Learning*, [*S. l.*], v. 3, n. 1, p. 69-90, 2020. DOI: 10.31681/jetol.662746. Accessed on: Mar. 2, 2025.

YIN, R. K. *Pesquisa qualitativa do início ao fim*. Porto Alegre: Penso, 2016.

ZAN, N. Communication channel between teachers and students in chemistry education: WhatsApp. *A Us-China Education Review*, [*S. l.*], v. 9, n. 1, p. 18-30, 2019. DOI:

10.17265/2161-623X/2019.01.002. Available at: https://files.eric.ed.gov/fulltext/ED598546.pdf. Accessed on: Mar. 2, 2025.

ZHENG, H.; LING, R. Drivers of social media fatigue: A systematic review. *Telematics And Informatics*, [*S. l.*], v. 64, n. 1, p. 1-13, 2021. DOI: 10.1016/j.tele.2021.101696. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0736585321001350. Accessed on: Mar. 2, 2025.

Cláudia Eliane da Matta, Federal University of Itajubá
[i] https://orcid.org/0000-0002-8939-3597
Professor in the undergraduate and graduate programs in Science Education. PhD in Production Engineering (Unifei), MSc in Electronic Engineering and Computing (ITA), and BS in Computer Science. Member of the TeCDEC research group.
Contribution: Formal analysis, conceptualization, data curation, writing – first draft, writing – revision and editing, research, methodology, and supervision.
Lattes: http://lattes.cnpq.br/1839800190588286
E-mail: claudia.matta@unifei.edu.br

Mariana Alves Ribeiro, Federal University of Itajubá
[ii] https://orcid.org/0000-0003-0051-1874
Graduated in Biological Sciences from the Federal University of Lavras (UFLA). Master's degree in Science Education (Unifei). PhD student in the Graduate Program in Science Education, specializing in Education and Technologies (Unifei). Member of the TeCDEC research group.
Authorship contribution: Formal analysis, conceptualization, writing – revision and editing, methodology, validation, and visualization.
Lattes: http://lattes.cnpq.br/0082037271657996
E-mail: marianaalves.biologa@gmail.com

Luciany Sacramento Pamplona, Federal University of Itajubá
[iii] https://orcid.org/0009-0002-8889-5808
Graduated in Psychology with a Bachelor's Degree from the Federal University of São João del Rei (UFSJ). Master's student in the Graduate Program in Science Education, specializing in Education and Technologies (Unifei). Member of the TeCDEC research group.
Authorship contribution: Formal analysis, conceptualization, writing – revision and editing, methodology, validation, and visualization.
Lattes: https://lattes.cnpq.br/5237837123960716
E-mail: d2025103306@unifei.edu.br

DATA AVAILABILITY

The entire dataset supporting the results of this study has been published in the article itself.

Responsible publisher: Lia Machado Fiuza Fialho

***Ad hoc* experts:** Antonio Evanildo Cardoso Medeiros Filho and Luís Paulo Leopoldo Mercado

Translator: Dilma Souto Ferreira

How to cite this article (ABNT):
MATTA, Cláudia Eliane da; RIBEIRO, Mariana Alves; PAMPLONA, Luciany Sacramento. The impact of platformisation on Basic Education: Challenges and implications for the educational context. *Educação & Formação*, Fortaleza, v. 10, e15109, 2025. Available at: https://revistas.uece.br/index.php/redufor/article/view/e15109

Received on April 3, 2025.
Accepted on September 13, 2025.
Published on October 16, 2025.