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Public and Private Actors and Educational Policy Implementation Networks during the COVID-19 Pandemic: The Experience of Minas Gerais/Brazil

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Abstract: This article analyzes, based on the formulation and implementation of the Special Program for Remote Activities (Reanp), the controversies of these processes, and the associations and translations of public, private, and technological actors during the COVID-19 pandemic. To track the actors and understand their connections, we considered approximately six thousand comments posted in virtual environments (Google Play Store and Facebook) and 37 interviews with education professionals, members of the State Department of Education (SEE/MG), and state schools. The study demonstrates that sociotechnical networks were shaped by dependence on technologies widely provided by private companies. The implementation of Reanp was disjointed, and the agency of private actors was expanded, without SEE/MG and school bureaucrats adequately appropriating its content and implementing it effectively. The relationships observed through Reanp allow us to understand how a process of intensification of virtual interactions occurred, with the mobilization of device functionality to become indispensable work tools, generating a logic of dependence on private corporations mobilized by the network, such as Meta and Alphabet, reinforcing the platformization of education, which was already underway before the pandemic.

Keywords: private actors; implementation of educational policies; COVID-19 pandemic; technologies; educational policy networks

Actores públicos y privados y redes de implementación de políticas educativas durante la pandemia de COVID-19: La experiencia de Minas Gerais/Brasil

Resumen: Este artículo analiza, a partir de la formulación e implementación del Programa Especial de Actividades a Distancia (Reanp), las controversias de estos procesos, así como las asociaciones y traducciones de actores públicos, privados y tecnológicos durante la pandemia de COVID-19. Para rastrear a los actores y comprender sus conexiones, consideramos aproximadamente seis mil comentarios publicados en entornos virtuales (*Google Play Store* y *Facebook*) y 37 entrevistas con profesionales de la educación, miembros de la Secretaría de Educación del Estado (SEE/MG) y escuelas públicas. El estudio demuestra que las redes sociotécnicas se moldearon por la dependencia de tecnologías ampliamente proporcionadas por empresas privadas. La implementación del Reanp fue desarticulada y la agencia de los actores privados se expandió, sin que la SEE/MG y los burócratas escolares se apropiaran adecuadamente de su contenido e implementaran eficazmente. Las relaciones observadas a través de Reanp permiten comprender cómo se produjo un proceso de intensificación de las interacciones virtuales, con la movilización de las funcionalidades de los dispositivos para convertirse en herramientas indispensables de trabajo, generando una lógica de dependencia de corporaciones privadas movilizadas por la red, como *Meta* y *Alphabet*, reforzando la plataforma de la educación, que ya estaba en marcha antes de la pandemia.

Palabras-clave: actores privados; implementación de políticas educativas; pandemia de COVID-19; tecnologías; redes de políticas educativas

Atores públicos e privados e redes de implementação de políticas educacionais durante a pandemia de COVID-19: A experiência de Minas Gerais/Brasil

Resumo: Este artigo analisa, a partir da formulação e implementação do Regime Especial de Atividades Não Presenciais (Reanp), as controvérsias desses processos e as associações e traduções de atores públicos, privados e tecnológicos durante a pandemia da COVID-19. Para rastrear os atores e compreender suas conexões, foram considerados aproximadamente seis mil comentários postados em ambientes virtuais (*Google Play Store* e *Facebook*) e 37 entrevistas com profissionais da educação, membros da Secretaria de Estado da Educação (SEE/MG) e

escolas estaduais. O estudo demonstra que as redes sociotécnicas foram moldadas pela dependência de tecnologias amplamente disponibilizadas por empresas privadas. A implementação do Reanp foi desarticulada e a agência de atores privados foi ampliada, sem que a SEE/MG e os burocratas escolares se apropriassem adequadamente de seu conteúdo e o implementassem de forma eficaz. As relações observadas por meio da Reanp permitem compreender como ocorreu um processo de intensificação das interações virtuais, com a mobilização das funcionalidades dos dispositivos para se tornarem ferramentas indispensáveis de trabalho, gerando uma lógica de dependência em relação às corporações privadas mobilizadas pela rede, como *Meta* e *Alphabet*, reforçando a plataformização da educação, que já estava em curso antes da pandemia.

Palavras-chave: atores privados; implementação de políticas educacionais; pandemia de COVID-19; tecnologias; redes de políticas educacionais

Public and Private Actors and Educational Policy Implementation Networks during the COVID-19 Pandemic: The Experience of Minas Gerais/Brazil¹

Brazilian federalism stipulates that the 26 states and the Federal District, along with the 5,565 municipalities, operate under a regime of cooperation and collaboration coordinated by the Ministry of Education (MEC). This regime centralizes regulatory functions and the provision of technical and financial assistance at the subnational level (Oliveira & Santana, 2010). During the pandemic, the management of the health crisis was marked by a lack of coordination and accountability on the part of the Federal Government (Carvalho et al., 2022). The MEC reproduced this logic, remaining largely absent. Thus, states and municipalities defined their actions in isolation, with distinct designs and strategies. This scenario paved the way for private actors, which, according to Tarlau and Moeller (2020) and Lima (2024), already held a significant space in the Brazilian educational landscape. They had more and new opportunities to manage public action, in addition to accelerating and expanding rent-seeking and power-gaining practices.

Technologies, combined with educational processes, have been the focus of disputes between? with different and often contradictory views. The expansion of information and communication technologies (ICTs) in the context of COVID-19 has intensified these debates, including issues related to the platformization of education, largely achieved through technologies provided by private actors. The conflict of interests, the results obtained, access to and use of educational technologies, as well as views on educational processes and their policies, constitute a field in which multiple actors, with diverse knowledge, experiences, and roles, interact through connections mediated by technology.

In this complex network of interactions, the platformization of education constitutes a sociotechnical controversy, whose human and non-human actors engage in disputes that are simultaneously local and global. These interactions constitute hybrid forums (Callon et al., 2001), which mobilize technical, social, and legal poles in contexts of uncertainty. This is especially relevant in countries like Brazil, where state capacities – both technical and political-relational, especially in subnational governments—are admittedly low for formulating, implementing, and evaluating public policies (Pires et al., 2018), in addition to difficulties and inequalities in technological access (Brasil, 2020) and low digital literacy.

¹ The authors are grateful for the financial support from the São Paulo Research Foundation (Fapesp) for the research “Implementation of Educational Policies and Inequalities in the Face of the Covid-19 Pandemic” (process number 2021/08719-0).

By interpreting this dynamic in Minas Gerais, the second-largest state in the federation, the experience provides evidence for understanding this phenomenon in Brazil. According to the Oliveira and colleagues (2022), the state had, in 2022, more than 1.7 million enrolled students; 3,612 schools in urban areas and 324 in rural areas; 15,561 principals and 96,783 teachers.

Considering the formulation and implementation of the Special Program for Remote Activities (*Regime Especial de Atividades Não Presenciais - Reanp*), a program implemented by the Minas Gerais State Department of Education (SEE/MG) in March 2020, this article describes and analyzes the controversies surrounding these processes, as well as the associations and translations of Reanp's public, private, and technological institutional actors during the COVID-19 pandemic. Aiming to ensure compliance with the school calendar, which was interrupted due to the health crisis, Reanp was implemented based on three axes, constituted as integrated technologies: (i) the *Conexão Escola* app; (ii) the Tutored Study Plan (*PET*); and (iii) *Se Liga na Educação*, a video class program.

This research is developed based on five dimensions associated with the controversies between the technologies implemented by technology companies and Reanp: (1) educational and commercial technologies; (2) institutional and daily communication; (3) relationship between government and private companies; (4) platformization of education; and (5) training.

Among the public actors mobilized, the following stand out: SEE/MG, Legislative Assembly of Minas Gerais, National Union of Municipal Education Directors (*Undime/MG*), state public television, Data Processing Company of the State of Minas Gerais (*Prodemge*)², city halls, and the Court of Auditors. On the side of the private actors: Alphabet (Google Suite for Education, Google Play, YouTube); Meta (Facebook, WhatsApp, and Instagram); Apple (Apple and App Store); telephone operators (data packages); internet operators; technology companies (desktops and notebooks).

The article is organized into five sections, in addition to the introduction and concluding remarks. In the first, we discuss sociotechnical networks and how technologies mediate interactions between the actors that comprise them. The second section introduces the concept of platformization, connecting it to the field of education. In doing so, the section highlights the role of private actors—global corporations that control the technological resources necessary for networked communication—and problematizes this connection with education. In the third part, we contextualize the research locus—the Brazilian state of Minas Gerais and its public education system—and explain the methodological approach adopted. The fourth and fifth reviews analyze and examine the data based on the five dimensions mentioned above.

Technologies and Sociotechnical Networks

The Frankfurt School, as early as the 1930s, described the non-neutrality of technology and its action as an apparatus of domination. Marcuse (1973) argues that technology ultimately shapes social behavior according to its productive demands, as well as individual needs and aspirations. For Habermas (1968), the technoscientific apparatus of domination expresses itself as an autonomous, neutral, and unquestionable structure of social organization. However, this supposed neutrality and inevitability of technology legitimizes political domination, thus functioning as an ideology.

² A mixed-capital company linked to the Minas Gerais government that serves Minas Gerais government agencies and entities in the provision of services in the areas of health, education, security, traffic, environment, management, finance, culture, tourism, agriculture, economic development, justice, among others.

Technical domination, in turn, is legitimized by capitalism, which is sustained by the State. This transforms the political relationship into a production relationship. Since the State aims to stabilize and foster the economic system, politics assumes a negative characteristic of preventing market-related dysfunctions and risks, aiming to solve technical issues rather than achieve practical ends. This results in the emptying of politics of its meaning, since technical problems are excluded from democratic discussions.

One approach that seeks to explain the construction and use of technologies without separating them from politics is actor-network theory (ANT). This theory investigates technological constructions, understanding technologies as the result of the formation of networks of human and nonhuman actors—sociotechnical networks—that constitute hybrid actors (concepts, objects, structures, technologies, etc.) through the connections established between them. According to Woolgar (1996), science and technology studies, in general, have questioned the boundaries between author and object, and within this spectrum, ANT has criticized the hierarchies among people, animals, and things.

The critique of hierarchies is based on the theory's central consideration that human and non-human actors have equal importance in the execution of action (which is collective), as it occurs through interactions between these heterogeneous actors. Technologies are fundamental mediators in relationships between humans and between them and their context, shaping actions through agency, involvement, and assignment of roles to other actors involved in the network. Each technology provides us with the script for what we must do to access and use it; in other words, they "make us do" things. They largely define our actions, which would be performed differently (or not at all) were it not for their presence. According to Latour (2006), this is the concept of agency in ANT: interfering in the course of action, promoting agency, and making other actors perform actions.

One way to understand controversies and the networks of actors who generate them is through hybrid forums. Hybrid forums are public spaces where controversies take place:

Forums are open spaces where groups can mobilize to discuss the choice of techniques that involve the collective. Hybrid, because the engaged groups and the spokespersons who claim to represent them are heterogeneous: we sometimes find experts, politicians, technicians, and laypeople who consider themselves interested. Hybrid, too, because the issues addressed and the problems raised fall into various fields, ranging from ethics to economics, including physiology, atomic physics, and electromagnetism. (Callon et al., 2001, p. 36)

The actors who make up hybrid forums come from different poles (legal, economic, political, lay people concerned with the problems), and are also linked to non-human actors, such as technologies (Callon et al., 2001; Callon & Rip, 1994), which also act and influence the dynamics.

The controversies and uncertainties they engender go far beyond purely technical issues. As the controversy unfolds, the boundaries between what is technical and what is social constantly fluctuate as new actors enter the scene. To say something is technical is to remove it from public debate, while to say something has a social dimension is to provide a possibility for discussion in political arenas. During the controversy, sociotechnical norms are produced that result from the disputes and aim to provide a stable basis for debate (Cruz, 2020).

Controversies allow us to study these boundaries, which are inseparably technical and social, through the analysis of hybrid forums and their technical, social and legal poles, and which highlight unforeseen effects and unexpected problems that are revealed when actors express and dispute meanings, interests and results of choices in collective dynamics (Daroit, 2007).

Venturini (2010) defines controversies as situations in which actors disagree. Disagreements arise from uncertainty about a situation, involve heterogeneous actors (human, non-human, and hybrid), exhibit the social in its most dynamic form, are resistant to simplification, and are debated and conflictual. Through controversies, it is possible to monitor actors in their relationships with others, jointly defining the course of action and shaping the sociotechnical network.

Considering that technologies constitute a technoscientific apparatus of domination at the service of capital, often supported by the state, which defines social behaviors and individual expectations and is central to the construction of the sociotechnical networks that comprise society, it is important to investigate how this occurs within the implementation of public policies. This becomes especially relevant in educational policies and programs, since, in addition to their social and economic importance, the target audiences of these policies are primarily children and adolescents, who are even more exposed to the influence of technological standards and definitions.

In analyzing Reanp in this article, we are interested in discussing how private actors have influenced the program throughout its implementation. Public policies, especially educational ones, can be shaped by these actors as strategic markets. In this sense, in the next section, we analyze the concept of platformization of education, which involves global companies—in this article's case, the technology companies Alphabet, Meta, and Apple—and their power to influence the state and society. This discussion will allow us to problematize, based on the data collected, how the network of actors links transnational private actors, educational policies, education professionals working in schools, students, and their families.

Platformization, Technologies and Strategies, and BigTechs Agency: Connections with the Field of Education

Platformization or platform society is the term coined by Van Dijck, Poell, and Waal (2018) to characterize the modulation of human life by global ecosystems of virtual digital platforms. For Kerssens & Van Dijck (2021), platformization is the transformation of educational content, activities, and processes to become part of a (corporate) platform ecosystem, including its economies, (data) infrastructures, and technical architectures.

Poell and colleagues (2019) define platformization as the interpenetration of digital infrastructures, economic processes, and governance structures of platforms across different economic sectors and spheres of life. For Van Dijck, Poell, and Waal (2018), it is an ecosystem in which society integrates.

Van Dijck, in an interview with the website DigiLabour (2019), discusses the platformization of society and explains that these BigTechs have designed their infrastructures based on three strategic mechanisms: (1) datafication; (2) commodification; and (3) algorithmic selection³. For Van Dijck, these are the foundations for understanding the notion of platformization. It is in this sense, according to several authors (Cone et al. 2021; Parra et al., 2018; Rivas, 2021; Van Dijck et al., 2018), that the concept of platformization of educational services should be understood.

In the scenario created by the arrival of the pandemic, societal structures—including, in Education, educational management bodies and schools themselves—became almost entirely

³ Datafication is the modification of actions, behaviors, and knowledge based on the performance of data produced by algorithmic intelligence systems. Conceived as a set of methods for collecting, processing, and treating data to make predictions, it is a dynamic analysis based on behavioral metadata. Algorithmic selection is a tool used in computer science to order elements sequentially, partially, or completely, after data manipulation (Lemos, 2021).

dependent on the digital infrastructures designed by the conglomerate known by the acronym GAFAM (Google, Apple, Facebook, Amazon, and Microsoft).

The intermediaries of education platformization can be distinguished into two groups: *connectors*, which directly connect users and providers; and *complementors*, which provide products, services, policies, and support through platforms, reinforcing the influence of BigTechs (Van Dijck et al., 2018). This allows us to understand that the role of Google Classroom is situational, acting both as a connector between physical classrooms and Google services, and as a complementor, strengthening users' ties with other products in the Google ecosystem.

According to a 2022 publication by the Brazilian Internet Steering Committee (CGI.br), the logic that corporate actors—such as Alphabet (Google, YouTube) and Meta (Facebook, WhatsApp, and Instagram)—already favored by a context of political and budgetary pressure to reduce state investment in infrastructure, are imposing themselves even more and expanding their capacity to act by being the absolute controllers of the servers, software, and tools made available and used by governments, organizations, institutions, and individuals—is strengthened.

Rodrigues (2020) explains that BigTechs are integrating and advancing in the field, going far beyond the implementation of educational platforms and applications. For this author, by developing customized products for the field or offering extensions and connections to their services, they “configure networked technological mechanisms and practices that have the potential to profoundly impact pedagogy, learning, and teaching practices in ways never before experienced by the population, due to the economic interests of the companies that own the platforms” (p. 10).

Blikstein and colleagues (2021) criticize the fact that, in these networks, continuing education for teachers, for example, takes on the appearance of training, minimizing the importance of digital literacy for these professionals, whose reach goes beyond the limits of dependence on “proprietary and closed technologies” offered by supplier companies.

According to CGI.br (2022), the platformization of education not only confronts us with a digitalized transposition of institutions, but also with something more robust that fiercely opposes public values. This movement rapidly reinvents social relations that have been built and matured over time, and which now unfold on a new plane characterized by the dispute between old and new actors, often with an imbalance of power between them.

For Lindh and Nolin (2016), the implementation of information and communication technologies (ICT) in education, by following the path guided by the information technology (IT) industry, disregards the needs of the school community and influences pedagogical principles as well as the organization and social and ethical aspects of the school. By disregarding the elements that characterize educational institutions, and to the extent that the education offered by these private actors puts into play configurations that favor them, there is a risk that schools will transform so profoundly that they subvert their very meaning.

According to CGI.br (2022), BigTechs have been advancing rapidly in the educational field, especially in the area of information management and digital technologies, which have expanded significantly in the emergency context caused by the pandemic. The platformization of education, characterized by Van Dijck and Poell (2018) and Barbosa and Alves (2023) as the adoption of digital platforms (controlled by these corporations) in the world of educational activities, or as Pretto and colleagues (2021) emphasize, by the penetration of large private technology companies into public education, necessarily means giving up—whether due to an emergency like COVID-19 or because the internet is now part of our lives—a world we have lived with and experienced for centuries to enter an environment of new technopolitical determinations.

For Kerssens, Nichols, and Pangrazio (2024), the increased use of resources made available by large technology corporations and the promotion of their political and economic interests depend on a set of strategic alliances at both a global and local level. In other words, a phenomenon like the

platformization of public services is always a result of the relationships mediated between BigTechs and the environments where their resources are used. The possibilities for action of these platforms and the actions they establish (and that are established through them) are especially relevant to the case of Minas Gerais, Brazil, as we will describe in the following sections.

The Research Context and Data Collection, and Analysis Strategies

The Educational Scenario of Minas Gerais

Known as one of the most heterogeneous regions in Brazil, the state of Minas Gerais is composed of 853 municipalities. It is also the second most populous in Brazil, with approximately 21 million inhabitants living in regions with highly unequal and heterogeneous socioeconomic and local indicators (Brasil, 2020).

Regarding the educational landscape, official data show that Minas Gerais has more than 4.1 million students enrolled in municipal, state, federal, and private education systems. The State Education and Training Service (SEE) manages 47 Regional Education Superintendencies (SREs) and 3,603 state schools (3,288 in urban areas and 324 in rural areas). The agency is responsible for approximately 2 million enrolled students (85.3% in urban schools and 14.7% in rural schools) (Minas Gerais, 2017; Brasil, 2019, 2020).

In addition to urban and rural schools, the SEE counts educational institutions that offer Exclusive Special Education (0.72%). The state also has 17 Rural, Indigenous, and Quilombola Education institutions that employ 519 teachers, 62 of whom have training in Specific Indigenous Education. Regarding Rural Education, 21 Agricultural Family Schools (EFA) serve 2,000 students. In total, the state education system in Minas Gerais has over 112,000 teaching professionals, including 15,561 school administrators (principals and vice-principals) and 96,783 teachers. Of these, 35.5% are permanent and 67.7% are temporary. Of the total, 23.5% are men and 76.5% are women (Minas Gerais, 2017).

Considering the importance of access to the internet and television media for the implementation of Reanp, the Continuous National Household Sample Survey (PnadC) conducted by the Brazilian Institute of Geography and Statistics in 2018, two years before the pandemic, revealed that 74.8% of the total population living in Minas Gerais uses the internet. Of the 79.3% of private households that use the internet, 99.4% do so via cell phone, 50.2% via personal computer, and 14.7% via tablet. Regarding the type of access, 58% of households have a fixed and mobile broadband internet connection, while 57.9% have a broadband connection only. Furthermore, 97% of Minas Gerais households have a television.

In Minas Gerais, the pandemic has exacerbated regional, social, and educational contradictions, materialized by the displacement of school activities to individuals' homes. In this scenario of education platformization via Google Classroom and other devices, technological dominance is held by private actors not necessarily committed to local demands, expectations, and social contexts (Oliveira et al., 2021; Oliveria et al., 2022).

Methodological Aspects

We understand the platformization of education as a sociotechnical controversy, which can be analyzed through the lens of hybrid forums. With the global social isolation caused by the arrival of COVID-19, we understand that in those initial lockdown periods (2020-2021), virtual environments became the communication channels most likely to access the perceptions of Reanp users. For this research, we identified public and private actors mobilized in this network and analyzed comments posted in virtual environments (Google Play Store and Facebook). These channels were chosen because Facebook was the preferred communication strategy adopted by the

State Education and Training Service (SEE/MG) during this period, and the Google Play Store was the platform where users posted comments and reviews about the *Conexão Escola* app developed by the state government—one of the technologies that make up Reanp, as detailed in the next section. In 2022, with the end of the lockdown, the research progressed through interviews with education professionals from Minas Gerais, members of the State Education and Training Service (SEE/MG), and state schools supported by the agency.

To collect comments posted on Google Play, we defined the first half of 2020 as the timeframe. For Facebook, we considered the months of May to October 2020. Both periods comprise the initial implementation of Reanp, highlighting the implementation trajectory over the months (Oliveira et al., 2022), based on the reactions and comments of the Program's audience regarding the content or technical issues related to Reanp technologies. Between May and June 2020, 5,305 comments posted about *Conexão Escola* on Google Play were compiled and analyzed, and between May and October of the same year, 388 comments posted on the SEE/MG Facebook page were compiled and analyzed.

Thirty-seven interviews were conducted between March 2022 and April 2023, the first two years after the resumption of in-person learning in schools. At the SEE/MG level, five high-ranking bureaucrats (BAE⁴) were interviewed remotely or in person at the agency's headquarters (Secretary of Education, Deputy Secretary, Advisor, and Undersecretaries). In 2022, with the end of the lockdown and the definitive resumption of in-person classes, 32 professionals (school principals, pedagogical supervisors, and teachers) were interviewed in person at 11 state schools located in six of the 12 mesoregions of the state of Minas Gerais: Vale do Rio Doce, Zona da Mata, Norte/Noroeste de Minas, Triângulo Mineiro, Central Mineira, and Metropolitan Region of Belo Horizonte.

The interviews sought to capture the challenges faced by state education bureaucrats in Minas Gerais during the process of implementing education during the pandemic and post-pandemic periods in the state of Minas Gerais. In this article, the comments and accounts from the interviews were selected and used as sources to identify the context of technology use. Five dimensions associated with the controversies between the technologies implemented by technology companies and Reanp were subsequently identified: (1) educational and commercial technologies; (2) institutional and daily communication; (3) the relationship between government and private companies; (4) platformization of education; (5) training.

Reanp in Minas Gerais: Design, Implementation Dynamics, and Controversies with the Network of Actors

Program Architecture and its Interface with Public and Private Actors

With the arrival of the COVID-19 pandemic and the suspension of in-person classes on April 18, 2020, the Minas Gerais State Education Department (SEE/MG) published Resolution No. 4,310, establishing the Special Program for Remote Activities (Reanp). Adopted by the Minas Gerais state education system as a methodological strategy for teaching and calculating student workload during the COVID-19 pandemic—for both remote learning [April 2020 to June 2021] and hybrid learning [July to November 2021]—Reanp was implemented based on three axes that constituted integrated technologies developed simultaneously by SEE/MG: (i) the *Conexão Escola* app; (ii) the Tutored Study Plan (*PET*); and (iii) the *Se Liga na Educação* Program.

⁴ High-level bureaucrats are agents who hold public positions and functions at the highest levels of an institution's organizational structure. They are known as policymakers, that is, decision-makers with political responsibility (Loureiro et al., 1998; Oliveira, 2007). For this research, the interviewees are identified as BAE1, BAE2, BAE3, BAE4, and BAE5.

The State of Minas Gerais (SEE/MG) also created the *Estude em Casa* (Study at Home) website⁵, designed to help students, family members/guardians, and teachers access information and materials more quickly during remote classes. The website also provided *Se Liga* video lessons and PETs for students and teachers to download, along with institutional documents regulating Minas Gerais' educational policies during the pandemic and instructional materials that served as guides for students served by state schools during the lockdown.

The *Conexão Escola* app was a free access platform for students and teachers in the state public school system, developed by *Prodemge*. The app was created to allow the school community access to the other two Reanp technologies (*Se Liga na Educação* and PETs) in addition to serving as a means of communication and interaction between students and teachers.

Throughout 2020 and 2021, *Conexão Escola* underwent a series of adjustments and redesigns to better adapt to its users' needs and enhance its functionality. Interviewee BAE2's testimony reveals the challenges regarding the app's availability and efficiency, and how this served the purpose of disseminating Alphabet's services during the crisis:

Conexão Escola was quite difficult to get to because our goal was to continue the classroom. So, how do we set up the classrooms within...? It was *Google*, right... (BAE2, SEE/MG)

Initially, *Conexão* was only available for mobile devices. Searching for and downloading the app for Reanp users was mediated by Google from the Google Play Store. In this first version, the app could only be installed on mobile devices running the Android operating system, excluding devices running iOS. Due to this limitation, in the first half of 2020, according to BAE1, *Conexão* experienced a revision when Apple-made devices were included. Furthermore, according to the interviewee, during this period, the application gained a web version for accessibility, also on computers.

With the end of the 2020 school year on January 30, 2021, the app received a new version, becoming *Conexão Escola 2.0*, designed to meet the needs of the 2021 school year. According to interviewee BAE2, although *Conexão* had undergone these redesigns, there were difficulties implementing virtual classrooms based on its current configuration. In the rush to continue the educational process and given the complexities encountered, according to BAE4, the SEE had to use Google Classroom resources.

We [speaking as part of the management team in the SEE] found a developer who built our app, and with him, we created an interface with *Google*, our existing partner. We developed this app that replicated the classroom—*Google Classroom*—on a statewide scale, with the entire API and integration already in place. (BAE4, SEE/MG)

The updated version of *Conexão* now incorporates Google's flagship product, Google Suite for Education, and also integrates Google Classroom, Google Jamboard, Google Meet, Google Docs, and Google Drive. These tools were widely used by teachers during remote classes, enabling video chats and the provision of materials produced by these professionals.

The second technology presented by SEE/MG consisted of Tutored Study Plans (PETs), monthly booklets containing study plans and activities, organized by school year, prepared by state education professionals based on the Minas Gerais Reference Curriculum (CRMG) and the National Common Curricular Base (BNCC), by the Course Plan of the teaching units (school year/series) and the workload provided for in the curricular matrices of the different levels and teaching modalities.

⁵ Later, the *Estude em Casa website* was renamed *Se Liga na Educação 2022*.

With the start of remote classes, the State of Minas Gerais (SEE/MG) wanted the PETs to reach students primarily through virtual means. Therefore, the handouts were made available in PDF format on the portal that brought together all the actions and information related to Reanp, Study at Home, and also on the *Conexão Escola* app. The latter, as already explained, at least during the initial implementation period of Reanp, did not materialize as an efficient tool for the program's audience. PETs were also sent via institutional email to students, their families/guardians, and teachers.

The *Se Liga na Educação* program was the third technology integrated into Reanp to be implemented. Daily broadcasts of *Se Liga* began in 2020 on the Rede Minas and TV Assembleia⁶ television channels. They were also available on the YouTube channel of the *Minas Television Network*. During the pandemic, after synchronous broadcasts, video classes with content from the different curricular components were made available on the YouTube channel and the *Conexão Escola* app, allowing access to the material and its asynchronous viewing.

In the first year of the pandemic, these video classes had more than 7,000 views in the first half of 2020. In the period analyzed (May and June 2020), Reanp's audience published more than 12,000 comments about the video classes on *Rede Minas*' YouTube channel, a clear demonstration that the program highly mobilized different actors.

With the end of remote classes, *Se Liga* continued to air on *Rede Minas* from Monday to Friday in the mornings. A visit to *Rede Minas*' website reveals that the program is no longer on the network's schedule. However, video lessons continue to be broadcast on YouTube, and although it is a SEE/MG program, *Se Liga* is not restricted to students in Minas Gerais state schools. Since its implementation, the recorded video lessons made available can be accessed and viewed by students and teachers everywhere, thus transcending the borders of the state of Minas Gerais. By October 2024, the *Rede Minas* YouTube channel had reached over 1.2 million views.

Private and Public Actors: Hybrid Forums in the Network of Controversies surrounding the Platformization of Education

The dynamics of implementing Reanp and the resulting developments introduced new actors into the state educational scenario of Minas Gerais and strengthened the action of others that were already there, providing services that, supposedly, the State would not be able to provide alone or independently, at such a critical time, full of pressure and uncertainty, as that experienced during the COVID-19 pandemic (CGI.br, 2022).

This dynamic, generated by the program's architecture, as described in the previous section and confirmed by BAE during the interviews, formed an implementation network that mobilized different actors. Given the need for connectivity caused by the arrival of the COVID-19 pandemic and social distancing, according to BAE3 and BAE4, telecommunications operators (mobile and internet) expanded their presence in education, offering broadband services to expand and/or improve internet access and connectivity during the pandemic.

On one side were the Alphabet conglomerates (Google Play Store, Google Suite for Education, YouTube), contractually linked to the State of Minas Gerais (SEE/MG). On the other side were services mobilized as informal practices, such as Meta (Facebook, Instagram, WhatsApp) and Apple (App Store), which gained more popularity during the pandemic, operating in education

⁶ *Rede Minas* Television is a Brazilian public, open-to-air channel owned by *Empresa Mineira de Comunicação*, a government agency of the state of Minas Gerais. *TV Assembleia de Minas Gerais* is a cable and satellite television channel affiliated with the Legislative Assembly of Minas Gerais (ALMG). Created in 1995, the channel allows Minas Gerais residents to follow the work of ALMG members in committees or plenary sessions.

as information systems and offering resources and virtual environments for remote learning, providing digital tools for education during this critical period.

The technical pole of the education platformization controversy is represented by these actors who dominate technologies. Although the State of Minas Gerais (SEE/MG) developed technologies for remote pedagogical practices within the Reanp, these technologies were linked to private actors for their distribution and use. Furthermore, problems related to technologies provided by Minas Gerais (SEE/MG) have led to the implementation of informal practices, involving the use of technologies already used by users, such as WhatsApp. This can be attributed to the state's lack of technical capacity to effectively develop digital technologies, as well as to the difficulties in accessing the internet and low digital literacy among technology users, observed in both Brazil and Minas Gerais. In such a context, the possibility of debate about technologies loses its dialogical character and, consequently, the possibility of democratic construction, with the capacity for agency being an attribute almost exclusive to BigTechs.

For Amiel and colleagues (2021), education departments establish partnerships with BigTechs like Google and Microsoft in quite heterogeneous ways, occurring through formal contracts or simply by digitally adhering to terms of service. Lima (2020), analyzing the case of Google Workspace for Education and Microsoft 365, the two most widely used products in the education sector, conclude that terms of use and privacy policies are anchored solely in the laws and codes of the countries where these institutions are headquartered. The emergency triggered by the pandemic, combined with the technical inability of the SEE/MG to provide effective technological solutions, weakened state power and strengthened the legal pole of the controversy, relegating the state to a secondary role in the platformization of education observed within the scope of the Reanp.

In Brazil, according to Parra and colleagues (2018), these services are contracted without any transparency regarding the protection of people's rights. Lima (2020) draws attention to the fact that the responsibility for subscription to these services in education falls entirely to the contracting institutions, that is, education management bodies and schools, which are also responsible for obtaining consent from those responsible for the students who use the services. Their data is used to improve the services themselves, as the platforms explicitly state, and for commercial purposes in other environments and applications outside the contracted package.

Lindh and Nolin (2016) warned, before the arrival of the pandemic, that the extension of these services for commercial use facilitated and strengthened the social, economic and political power structure of the actors who held them and how this put the algorithmic identity of students at stake, since the data provided by these users could become merchandise for BigTechs.

Thus, it is clear that the legal framework, characterized by the norms governing the use of technologies, can penetrate important elements of the social framework, especially when considering ethical issues related to the use and privacy of data. The technologies made available by BigTechs, aligned to private agendas and interests, have not necessarily been regulated by the government regarding the collection and use of data, central elements because they address the relationship between technologies and children, adolescents, and young people, who may be more subject to ideological influences expressed in the interests of BigTechs incorporated into educational technologies, contrary to Article 2, Clause VII of the General Personal Data Protection Law (LGPD), which advocates the free development of personality (Brasil, 2018).

During the critical months of the pandemic, faced with the need to respond quickly to the demands imposed by remote learning, educational institutions accepted and submitted to the conditions and terms imposed by companies like Alphabet and Microsoft to use "free" packages like Google Suite for Education and Microsoft 365 (Amiel et al., 2021; CGI.br, 2022; Cobo, 2020), designed to serve educational communities during remote classes. This resulted in what Blikstein and

colleagues (2021) called the education sector's growing dependence on proprietary services and technologies offered by BigTechs. This required an effort to educate and train professionals in the use of these technologies, even after the pandemic, as indicated in the last comment in the sequence below, indicating a possible absorption of these technologies in the Minas Gerais state education system.

We developed a course designed by the Training School with the help of technology centers across the state. This course, which was even supervised by Google, is what we call the Google Workspace course. We teach everything from how to open Google Docs to how to use Google Classroom. Everyone went through all the Google Workspace tools, not just Google Classroom. Google Classroom was a module of the course, which was 180 hours long. We never taught this course in person. This course, for the record, is the course with the most certifications in our entire network. It certified 150,000 people. 150,000 teachers! In other words, it's an enrollment of all the tenured teachers in the network and a little more. So, we have at least the guarantee that all tenured teachers in the network are certified in this course. (BAE4, SEE/MG)

[...] There was one that was exclusive to these digital tools, there was one that we created using the Google For Education platform, which we started using within *Conexão Escola*, Google Classroom. And we organized this Google Classroom, and almost 100% of the teachers participated. (BAE3, SEE/MG)

Many Superintendencies had their initiatives to promote live broadcasts, training sessions with teachers, meetings with specialists and principals, to work on the use of these technologies. [...] Later, I learned that some training courses were created by the Training School to offer training courses on the use of technologies. (BAE5, SEE/MG)

From the interviewees' comments, it's clear that the technical center once again appears to be subject to technologies provided by Big Techs, with courses emphasizing the use of these technologies and their absorption by teachers. As one interviewee noted, Google for Education has become one of the mediators of the network that makes up *Conexão Escola*.

For Kerssens, Nichols, and Pangrazio (2024), in a scenario where educational systems become decentralized and increasingly integrated with technologies and products from the Big Tech ecosystem, educators become targets of lobbying by companies like Google and Microsoft. In this effort, the authors argue, Google products emerge not only as educational technology tools but also as indispensable and vital resources for workforce development.

Kerssens (2024) argues that programs for educators provided by BigTechs and their partners adopt the same logic as public education (certifications, badges, teacher training certificates) to "certify" their private products as indispensable tools for the classroom, whether remote or in-person. For the author, the personalized programs offered by these companies are an attractive strategy to capture teachers and convince schools of the educational benefits of these platforms.

In this context, partnerships and cooperation agreements between states and companies were established without considering the impacts of these negotiations on education. One such impact concerns the manipulation of personal data of users of services and platforms provided by BigTechs, especially those of the most vulnerable populations, such as children and adolescents.

Why am I forced to accept access to my data, such as photos and personal files, if I can't view the slides? Do people who praise me think it's normal for their data to be accessed? (Professor N, Google Play Store)

[...] They should quantify the cases of cybercrime that are already beginning to be reported, including teachers as victims, since many had to provide their numbers for the implementation of a UNIZAP-style teaching regime, since SEEMG did not even provide a functioning platform!!! (Professor 124, Facebook SEE/MG)

The availability and use of tools can be perceived as authoritarian based on the above comments. When discussing technical democracy in education, Thompson and colleagues (2023) point to the democratizing potential of hybrid forums. As Callon, Lascoumes, and Barthe (2001) point out, hybrid forums do not bring democracy to the issues at hand; they express the need for deeper democracy so that some actors are not reduced to silence.

According to CGI.br (2022), access to these seemingly free technological resources and services is widely adopted by many public officials, without critical analysis. In practice, according to Gonsales and Amiel (2020), this relationship involves payment made using personal data and metadata shared and stored on virtual platforms that will be used endlessly by companies, in their entirety.

The intertwining of technical, social, and legal issues is a constant in the controversy analyzed. The power imbalance within the network, evident in the importance of the technologies provided by BigTechs and the technological and contractual subjugation of the Minas Gerais government, as well as the lack of knowledge among users of these technologies, ultimately creates a controversy that fails to develop into a dialogical consensus.

Reanp, Private Actors, and Everyday Connections with Users Mobilized by the Implementation Network

As expected, in an unprecedented and emergency context during the pandemic, throughout the implementation of Reanp, the SEE/MG, responsible for decision-making and the initial design of the program, reformulated it according to the needs of students and education professionals in Minas Gerais. Similarly, according to Oliveira and colleagues (2021; 2022), education professionals, students, and their families translated and interpreted Reanp, creating practices, strategies, and daily repertoires that shaped new implementation dynamics.

Within the school, the principal, accompanied by the school management team, was the key player on the front lines of Reanp implementation, working in-person or virtually, serving as a liaison between the SEE/MG, teachers, pedagogical coordinators, other professionals, families, and students. In addition to maintaining direct contact with students and their guardians, the teacher was also responsible for preparing and organizing materials, supplementing those already produced by SEE/MG, made available via WhatsApp, email, and the *Conexão Escola* app (when the app was working efficiently), as well as through Google Suite for Education tools.

The difficulties faced by Reanp users when trying to access and use *Conexão Escola*, combined with Prodemege's slowness in resolving the app's operating issues, paved the way for the participation of another company associated with so-called "Surveillance Capitalism" (Zuboff, 2019), Meta, in remote education. In this scenario, school professionals (principals, pedagogical supervisors, and teachers) began creating WhatsApp groups to communicate with students and/or their guardians and to send PET documents in PDF format, mobilizing another non-institutional actor in the implementation of Reanp.

[...] the app doesn't work, students are already used to WhatsApp groups, where we interact, get their attention with new files, but if they force us to use this app, then the government will be the one to end school dropouts. (Teacher 189, Facebook SEE/MG)

[...] and it's really bad, it's really bad, we can't keep accepting everything that's imposed on us. Poorly designed handouts, tools we don't have access to. I'm taking classes via WhatsApp. (Student 21, Facebook SEE/MG)

Throughout the Reanp implementation, the agency of non-human actors (technologies) was decisive in shaping the network and educational processes and, arguably, influenced their outcomes and impacts. The technologies developed by SEE/MG defined transformations in professional practice, especially for teachers, and simultaneously changed the way pedagogical processes were carried out. While enabling this alternative during the period of social isolation, the functional and content issues of the technologies developed by SEE/MG ultimately led users to opt for better-known or more effective tools, notably technologies developed by international corporations. Thus, courses were developed by private companies to encourage teachers and pedagogical processes to adapt to these available tools. In other words, the definition of Reanp's educational processes was largely external to SEE/MG.

For Davies and colleagues (2022), this platformization resembles a deinstitutionalization of education, in which the system undergoes reinstitutionalization in favor of the interests of private platforms. The standardization of education is progressively outsourced to algorithms, intellectual property owned and operated by large educational technology corporations, which control the development and functionality of the software (Veale, 2022). Thus, Selwyn and colleagues (2023) argue that, by binding users of their services through technical standards or contracts, BigTechs increasingly influence and control the processes of sociotechnical change in schools.

Although the interconnection of educational hardware and software seems perfect from the point of view of facilitating the digital reform of schools, it also reinforces the agency of technology companies over the organization of education at the school level, since the actors operating education at the grassroots level become effectively tied to the service line of a given company (Kerssens, 2024; Kerssens & van Dijk, 2021).

Silent Controversies and their Repercussions for the Educational Field: Derivations of the Interactions Mobilized by the Reanp Implementation Network

The controversy analyzed allowed us to identify a diversity of actors in the network that engaged during the pandemic: citizens using the service, government managers and bureaucrats, and businesspeople and employees interested in selling or making available technologies, who, in turn, also play a leading role in their use process.

Reports from those interviewed at the State Department of Education (SEE) reveal that interactions between the State Department of Education, students, and their families were mediated by the *Conexão Escola* app and *Se Liga na Educação*, technologies developed by the Minas Gerais government but facilitated by various actors outside the state. Among the private actors, those linked to the Alphabet conglomerates, such as the Google Suite for Education and YouTube platforms, and the Meta conglomerate, such as Facebook and WhatsApp, stand out.

While Alphabet was contractually linked to the government app and program, according to interviewees BAE2, BAE3, and BAE4, Meta's devices were chosen by users and education workers to facilitate everyday interactions that were reminiscent of more institutionalized platforms, as revealed by interviewees and public comments on the digital platforms themselves. To enable Reanp, the network of actors supporting Minas Gerais' education policy underwent significant changes, with the greater presence of private actors through their digital platforms and altered the existing relationships within the sociotechnical network.

The limitations imposed by the pandemic and available technologies undermined the ability to develop democratizing solutions that serve the main beneficiaries of educational policies. In the context of Big Tech's technological dominance, the Frankfurt School's discussions remain relevant, given that technology was understood as inevitable for carrying out pedagogical activities during the pandemic. At the same time, the policy beneficiaries' perspectives were not incorporated into technological transformation to address social problems. On the contrary, there was only an attempt to circumvent some of the technology's operational problems; in other words, the solution presented was training through the adoption of more private technologies. This ultimately reinforced Big Tech's position of power and its capacity for agency, reinforcing their dominance in a scenario where capitalism is also established in material and procedural aspects within the state and its relations with citizens.

The analysis, based on hybrid forums, allows us to elucidate how a global apparatus ultimately influences the material, procedural, and relational specificities of issues affecting specific locations and public policies. In the context of countries like Brazil and states like Minas Gerais, where inequalities in access and digital literacy affect the majority of the population and institutions, it is worth questioning how actors are silenced by both state and technological action, fostering the hollowing out of politics and the formation of individuals who become outsiders to democratizing processes because they are immersed in these realities.

The controversy surrounding this process is muted. After all, the survey of app download platforms makes it clear that, in general, the concerns of users of educational services relate to the technologies' limited functionality and the need for more communication channels via apps and social networks, as evidenced by comments from Reanp users on Facebook and Google Play.

From an institutional perspective, the interviewees' accounts demonstrate that complaints about the lack of government autonomy in the development of these services, leading to dependence on commercial technologies, are quite rare. Complaints about poorly regulated personal data theft or the possibility of abrupt standardization of public education provision through foreign digital platforms are even more rare.

In the logic of "Surveillance Capitalism", consumers and products are amalgamated into a single entity. According to Van Dijck (DigiLabour, 2019), social and economic processes are hidden within algorithms, business models, and data flows that are not open to democratic control. Thus, the ideology of neoliberalism defines the architecture of our connective society. Therefore, Reanp users are treated as consumers, since their relationship with the program goes beyond the interactions limited to it.

Digital platforms mobilized as devices for the provision of public education services are not neutral. On the contrary, they are mediated by interests among the most relevant actors in the contemporary global economy. According to Birch and Bronson (2022), companies such as Meta, the owner of Facebook, and Alphabet, the owner of Google, have become increasingly central to understanding surveillance, monopoly, and market power, due to their practices with broad political, economic, and social implications. Although still far from being implemented, measures to regulate digital platforms have been called for by countries in both the North and South, as Big Techs have proven capable of influencing results in national elections and extracting valuable private data by supporting the devices necessary to mediate current social relations.

In Brazil, transparency regarding the processing and use of user data on social media platforms is the target of important initiatives by civil society groups such as *Coletivo Brasil de Comunicação Social—Intervozes* and the non-governmental organization Sleeping Giants, which act as counter-experts (Rivasi, 1996), unconstrained by potential governance agreements between the state and transnational information technology corporations. They have made public their investigations

and complaints about the specific effects of the platforms' reach, the need for algorithmic transparency, accountability, and business models. The country also has the Brazilian Civil Rights Framework for the Internet (Brasil, 2014) and the General Data Protection Law (LGPD), Law No. 13,709/2018. However, their effects are insufficient, either due to the speed of technological change or the limited capacity of the institutions responsible for monitoring compliance. Thus, despite the protection of children and adolescents in digital contexts (article 5, item LXXIX, of the CF/88), the digitalization of education cannot also dispense with the security of the data of its users, in this case, students and teachers, because, as Lima (2023) argues, accessibility to quality internet services and technological devices will not be effective if teachers, parents and students cannot use them safely.

In general, discussions about digital governance and internet governance and their instruments, which include internet access rights and personal data protection, are limited to scholars and activists involved in the right to information and communication (Freitas et al., 2020). It is possible to question what the unintended consequences of a process of commodification of public action would be, fragmenting service provision, multiplying networks, and diversifying regulatory modes (Rhodes, 2007). For Rhodes, one of the founding theorists of this discussion, public policy networks and governance are synonymous, corresponding not only to the pluralization of actors on the scene but also to the emergence of a diplomatic interactional logic that carries the risk of hindering the effective action of state actors. This perspective is distinguished from a virtuous and horizontal network metaphor (Brugué et al., 2015; Marques, 2019), to precisely resemble the dynamics observed during the context of the health crisis in Education in Minas Gerais.

In Minas Gerais and around the world, during the pandemic, the incorporation of digital education techniques and tools required live broadcasts, training, and courses to learn how to use new devices; the purchase of tens of thousands of pieces of equipment; and a change in practices with the potential to transform what is considered a priority for education. In a context of social isolation, the difficulties associated with the replacement of in-person teaching with a virtual environment was accompanied by the acknowledgement of the lack of capacity, by public servants in the education sector themselves, to develop application interfaces for this process. This situation established a relationship of dependence between the Minas Gerais education sector and large technology companies.

These companies quickly began offering educational services with broad commercial and logistical benefits from digital technologies for controlling, altering, transferring, storing, and replicating knowledge and information (Selwyn, 2021). Given the incorporation of the use of technological devices into everyday life, the behind-the-scenes interests behind the mobilization of these techniques and tools are rarely questioned (Espíndola & Grané, 2023), making it even feasible to reinscribe references about what education is and what it can be—and to shape, based on foreign technical criteria unrelated to public education, the horizons and possibilities of educational practice.

Final Considerations

By analyzing the dynamics arising from the Reanp implementation network, this article reveals and discusses how private actors guided the Program's logic throughout its trajectory. This analyses show that the creation of sociotechnical networks (Akrich et al., 1988) were dependent on technologies widely made available by private companies. The data also show that the implementation trajectory of Reanp was disjointed, which allows us to assume that the agency capacity of private actors was expanded, leaving no time for bureaucrats at the SRE and school levels to appropriate its content and implement it effectively.

The analysis of the relationships established during the pandemic within education settings in Minas Gerais allows us to understand how a process of intensification of virtual interactions

occurred with the mobilization of the functionality of devices, so that they became indispensable work tools, thus generating a logic of dependence on private corporations mobilized by the network, reinforcing and aggravating the platformization of education, which was underway before the pandemic.

In this sense, interpreting the educational delivery process in Minas Gerais during the pandemic allows us to consider actors like Meta and Alphabet, through their platforms and applications, as more than mere technical devices. They are actors with the capacity to shape, create opportunities, constrain, and influence public actions, processes, and regulatory instruments, generating dependency effects through platformization that extend beyond specific moments of crisis.

Although we did not analyze the contracts signed between the state government and the technology companies involved—the amounts paid, the contractual clauses, the requirements, the guarantees, the confidentiality and data use rules, among other categories—the data collected allows us to identify important concerns associated with the expansion of the agency capacity of private actors in the field of public education policies.

As noted earlier, these actors recognize education as a strategic market, although it is not the only one in which they operate. Because they hold exclusive resources, which can lead to monopoly/oligopoly patterns, these corporations, through the technologies and tools that materialize these intermediations, have expanded their power over the state and society.

Education emerges as another sector of economic activity in which such conglomerates operate. This operation occurs on two levels: the first is associated with the sale and provision of educational goods and services to governments, which will then be made available to education professionals and students. The second concerns the ability to influence the formulation of educational policies, as these private actors can influence the debate and propose solutions.

For Kerssens and van Dijck (2022), with the advent of education platformization, large collections of data collected by large corporations are transformed into inputs that provide information on learning trajectories, behavioral, cognitive, and developmental aspects. In this context, platformization territorializes student information across geographic and sectoral boundaries, and this data is transformed into valuable contributions and valuable assets in a globalized process of automated education.

By facilitating the transformation of data into assets for Big Techs, the platformization of education increases the agency of these actors while contributing to the capture of public education. Public education sectors benefit from the use of technology products; in contrast, they have little or no understanding of how their data is collected and used for the benefit of large global technology companies, which, in turn, develop this data in formats that are inaccessible for improving education in schools themselves, unless they can be sold as data analytics products (Day et al., 2013; Kerssens & van Dijck, 2022).

There is also a third, hidden level that derives from the first two. Precisely because it is hidden, it would require other methodological strategies to demonstrate it, which goes beyond the scope of this article, but which directly relates to this discussion at both levels analyzed: these companies use the areas in which they operate—education is included in this list—as instruments to expand their connections and their agency as global actors. The mass production of data, algorithms, and artificial intelligence manipulates institutions, governments, and people, reinforcing the urgent need for regulation of tools and platforms.

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