

Initial notes: datafication and data protection in the Brazilian university scenario

Datafication
and data
protection

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Abstract

Purpose – This study aims to analyze the platforming scenario at a Brazilian university as well as the data security process for students and professors.

Design/methodology/approach – This research brings an analysis through a qualitative approach of the platformization process in a Brazilian teaching institution.

Findings – The results point to a lack of knowledge on the part of teachers regarding data security in the platforming scenario, as well as the lack of effectiveness of institutions in protecting student data.

Originality/value – Within the Brazilian scenario, this research seeks to contribute to the discussion on platformization in view of the gaps and existing demands on this process in the country.

Keywords Datafication, Data protection, University teaching

Paper type Conceptual paper

Introduction

The datafication process has been taking place in contemporary society in distinct segments, including education, through the mediation of the so-called digital platforms for education (Williamson *et al.*, 2020).

Such a process is directly linked to the presence of Big Techs, also known as Google, Amazon, Facebook/Meta, Apple and Microsoft (GAFAM) or even Facebook/Meta, Apple, Amazon, Netflix and Google (FAANG).

Beyond those corporations, platforms such as Twitter and Spotify, among others, also occupy a remarkable place within these dynamics of platformization in different parts of the world, such as Asia, with Baidu, Alibaba, Tencent and Xiaomi (BATX). Together, those companies have become proprietors of the content and data we produce.

Birch and Bronson (2022) prefer using the term Big Tech to the detriment of others that have been used because, in addition to being more consistent, it avoids divergences in acronyms, once changes of corporations names may occur, such as Facebook/Meta, diverging, for example, from the acronym GAFAM.



We would like to acknowledge the National Council for Scientific and Technological Development – CNPQ, for the financial support to the project and the students and professors of the partner institutions, Federal University of Bahia (UFBA), State University of Bahia (UNEB), Federal Institute Baiano (IFBaiano) and Federal Institute of Paraiba (IFPB).

Those Big Techs are constituted as sociotechnical agencies that organize themselves, taking into consideration economic, cultural and technical aspects, which influence contemporary social dynamics and shared understandings (Selwyn, 2022) around phenomena that affect society.

Big Techs present dimensions related to platforms that generate platformization, scale and scalability, which constitute foundations for these corporations, which, in turn, organize themselves through infrastructure, business models, governance systems, practices and affordances (Birch and Bronson, 2022; Van Dijck, 2017).

For Birch and Bronson (2022), it is necessary to open the techno-economic black box represented by those corporations, pondering on the technoscience domain, political economics and the dynamics of their narratives, conditions, practices and processes in distinct society segments, among them, education.

About education, we highlight the Dossier “The datafication of teaching in higher education: critical issues and perspectives” (Williamson, Bayne and Shay, 2020) and, in Brazil the recent study “Education in a scenario of platformization and data economy” by the Working Group of Educational Platforms of the Internet Steering Committee (Núcleo de Informação e Coordenação do Ponto BR, 2022).

Drawing on Pasquale (2015), the term black box refers to how a system presents itself as mysterious, in which we can identify the inputs and outputs of information. However, there is no transparency of how one becomes the other (inputs and outputs). According to the author, we have yet to learn how far this information can travel, how it is used, or its consequences.

In a dialog with authors Birch and Bronson (2022), Selwyn (2022) outlines the growing presence of Big Techs in school and academic scenarios, especially Google, with its products and services, for example, laptops Chromebook, Google Classroom, professors, formation processes, with curriculum propositions which are structured mediated by technologies such as artificial intelligence.

Besides Google, Microsoft, Apple and Amazon stand out in the field of education, with services and actions that aim at collecting and modeling behavior delineating adaptive learning; that is, they personalize learning to interpret and meet students’ needs, stemming from the traces left in the environments. These data are organized through Educational Data Mining (EDM) and Learning Analytics (LA) tools.

Considering the brief context presented above, this essay intends to point out the practices of EDM and data protection in Brazil, focusing on the Federal University of Bahia.

Thus, this essay presents reflections based on primary data related to the application of questionnaires and semistructured interviews with Federal University of Bahia professors and students. The research linked to this investigative action is associated with the digital teaching platforms project: a case study of the interaction of professors and students at the Northeast Federal University of Bahia (UFBA), State University of Bahia (UNEB), Federal Institute Baiano (IF Baiano) and Federal Institute of Paraíba (IFPB), located in Brazil, financed by the National Research Council. As it constitutes a preliminary study linked to the project indicated above, the empirical data of the research, which is still in progress, will only be presented in part.

We structured this production into four sections and the final considerations. In the first section, called Introduction, a brief characterization of the action of Big Techs in society is presented, highlighting the area of education.

The datafication and platformization of teaching section presents aspects of platformization, particularly the growth of interaction in academic environments during the COVID-19 pandemic. The third section, entitled the Brazilian scenario and the General Data

Protection Law – GDPL, contextualizes and points out the most recent actions to regularize the law, highlighting the practices developed by the UFBA to implant and implement the committee that structures the GDPL in this institution.

The EDM process in Brazil is discussed in the fourth section, practices of EDM in Brazil, and at UFBA, pointing out tensions generated by these processes and the protection of student data.

Finally, in the final Conclusions, we point out the need to encourage more critical attitudes on the part of the actors interacting with these platforms in different scenarios and their possible consequences to guarantee data protection practices, especially for students.

Teaching datafication and platformization

In the last 10 years, the platforming process in society has grown in different areas, especially in the educational field, to varying levels of education. The unique characteristic datafication of this process is marked by algorithmic management, by the standardization of data collection, calculation and storage processes that are leveraged from the platformization coming from Big Techs, structuring the data collection ecosystem (Poell, Nieborg and Van Dijck, 2020).

For the authors, platformization is organized in three dimensions. The first is the development of data infrastructures related to how digital platforms are transformed into data (datafication); the second refers to the reorganization of economic relations around multilateral markets; third, governance that governs user interactions, optimizing engagement and retention.

In the education scenario, author such as Williamson (2021) has been discussing the role that Edtech, linked to Big Techs or even companies such as Pearson Education, plays in the current context, offering personalized teaching and adaptive learning based on the systematic collection of sensitive data from users.

Due to COVID-19, institutions had to engage in remote teaching; this platformization process was accelerated too much. Teräs *et al.* highlight that:

In the Covid-19 pandemic, the hypothesis of ‘broken education’ offers an opportunity to ed-tech businesses to sell untested solutions which sometimes have little to do with proper teaching and learning philosophies (Teräs *et al.*, 2020, p. 870).

Norris (2023) points out the growth of these companies during the pandemic, mainly due to the need to interact with digital platforms in the educational scenario, arguing that the profits these companies make should somehow be reversed to promote the quality of education.

Linked to this, the debate on homeschooling has been gaining ground in Brazil over the last few years. Edtech understands this phenomenon as a possibility of consolidating online teaching and strengthening the marketization of education (Guzmán-Valenzuela *et al.*, 2021).

Such dependence on the use of these platforms forced users to use their applications in an inattentive or unconscious way, many times about their terms of use and privacy policy, denying users a period of discussion on aspects such as the GDPL and the actions of cookies to collect user information.

Given this scenario, it is necessary to expand discussions on the platformization of education, enabling the actors involved in this process (professors, students and institutions) to have a greater understanding of the control and extraction of data imposed by the datafication process (Norris, 2023; Selwyn, Pangrazio, Cumbo, 2022; Komljenovic, 2021; Williamson, Bayne, Shay, 2020; Williamson, 2017).

In the next section, we present the Brazilian scenario for implementing the GDPR and the actions taken at UFBA to put this legislation into effect.

The Brazilian scenario and the General Data Protection Law

Discussions on data protection in Brazil began with Law no. 12.965 of April 23, 2014 (Marco Civil da Internet), which subsidized, along with the influence of other similar legislation in Europe and the United States, the regulation of Law no. 13.709 of August 14, 2018. This Law provides:

[...] on the processing of personal data, including in digital media, by individuals or legal entities governed by public or private law, for the protection of fundamental rights of freedom and privacy and free development confers to the personality of the natural person (Article 1).

The growth of the datafication process driven by Big Techs, which began to aggressively appropriate users' sensitive data as an essential element of the business model of these large companies, shows that the current legislation in Brazil needed to meet the needs to protect the users.

Thus, for two years, new and intense discussions were held to ensure the control and security of the data of Brazilian citizens, influenced by the continuous repercussions of the Cambridge Analytica scandal in 2014, among others. Finally, on September 18, 2020, during the COVID-19 pandemic that further expanded the actions of companies such as GAFAM, Brazil's new Data Protection Law was regulated – Law no. 14.058 of 2020.

This Law still has many limitations, including protecting children and adolescents' data, with only one article (no. 14) that deals with this issue.

The following year, in 2021, the National Data Protection Authority – ANPD [1], created on July 9, 2019, will more effectively monitor compliance with the GDPR. From that moment on, companies and public and private institutions have had to adapt to the requirements of this Law, protecting their users' data.

On February 27, 2023, this body's Regulation on Dosimetry and Application of Administrative Sanctions was published to reinforce inspection activities [2]. In this context, in 2021, UFBA created a committee to adapt the GDPR within the University, structured in four stages: elaboration in agreement with the National Research Network – RNP – definition of a methodology to adjust the GDPR to the University; organization and creation of the Adequacy Committee, structured in working groups to develop actions involving: processes, training, contracts/agreements, security/IS, ombudsman/e-SIC and communication.

The development and implementation of these actions constitute the third stage, in which the committee will develop control and monitoring mechanisms for maintenance and adequacy. Finally, the last step, which refers to evaluation and improvement, is characterized by an iterative process [3]. All these actions are linked to the University's Information Technology Superintendence – STI.

Before the COVID-19 pandemic, data protection actions and policies at UFBA were unclear, especially concerning professors and students. For example, the University mentioned above did not institutionalize a platform for use but allowed professors to interact with those more adherent to their practices and ideologies without creating a space for debate about the aggressive data collection carried out by Google.

Despite this, UFBA agreed with Google for unlimited storage space in the clouds and to mirror institutional e-mails without a financial investment by the University but with permission for broad and unrestricted access to data from users (professors, students and technicians). However, the company reported in 2021 that it would change its business model in July 2022, starting to charge for the unlimited use of its tools.

Google's new proposal is to make available to public institutions, such as universities, only 100 terabytes to distribute among students, professors and the academic community. This limit makes it impossible to continue using this company's services, as many universities, including Federal University of Bahia, cannot afford unlimited access (Charles, 2022a), given the financial crisis experienced by public teaching and research institutions in Brazil [4].

To meet the demand for recording classes and activities, Federal University of Bahia institutionalized the Loom (LOOM, 2022) platform, which has a free version, since with the changes imposed by Google, the recording function was blocked in Google Meet for universities that were using it without financial payment.

The above scenario makes us question why, despite free software platforms, they are not widely disseminated or used, especially in public educational institutions. Although there is already a legal opinion from the Federal Supreme Court that supports Law no. 11.871/2002 in the State of Rio Grande do Sul on the preferential use of free software in direct and indirect public administration, there is still a low effectiveness of the use of free software in education institutions. However, this opinion refers to only one Brazilian region, and there is no legal mobilization or the Software community in Brazil to strengthen this culture.

This fact can be justified by the need for more systematic technical support from the groups that manage such tools, the lack of commercial appeal, the lack of teams within educational institutions responsible for disseminating practices and continued training for free software, or even the fact that many already widespread applications do not have versions on free platforms and that despite the existence of similar versions, they depend on a process of adaptation by their users, among other aspects.

The platforms Google Classroom, Google Meet and Zoom indicated by professors as teaching and learning spaces before and during the pandemic show an adherence, including institutional, by the proprietary artifacts linked to GAFAM. These data are in line with the research that has already been carried out by the project called (Educação Vigiada), which points out that both in Brazil and throughout South America, the use of GAFAM products (in red) has grown in recent years, to the detriment of other options (in green) as shown in the map (Figure 1).

In the face of the growing use of such platforms and, often, of the lack of knowledge of students and professors regarding the process of datafication installed by these companies since the beginning of the years 2000, we question the knowledge of discussions on algorithmic racism, GDPL, control, vigilance and infrastructure for these environments. However, only 23% of professors (interviewed for the above research) reported discussing these topics with their students.

It is essential to highlight that the university management should have discussed such choices with its professors, students and technicians, placing them on the data collection process established with the agreements between Federal University of Bahia and companies such as Google.

On August 25, 2021, the university's dean announced on YouTube the creation of the Committee for implementing care and actions related to the GDPL. UFBA makes other videos available on its YouTube channel with information and guidance on the legislation [5].

On November 18, 2021, the university [6] presented the structure of the Committee [7] in the live GDPL Fundamentals and its implications at UFBA, highlighting the importance of being attentive to legislation, including investigations, protecting data from professors, technicians and students.

However, a forum for debates about the aggressive data collection actions introduced by the platforms that professors used during remote teaching still needs to be created.

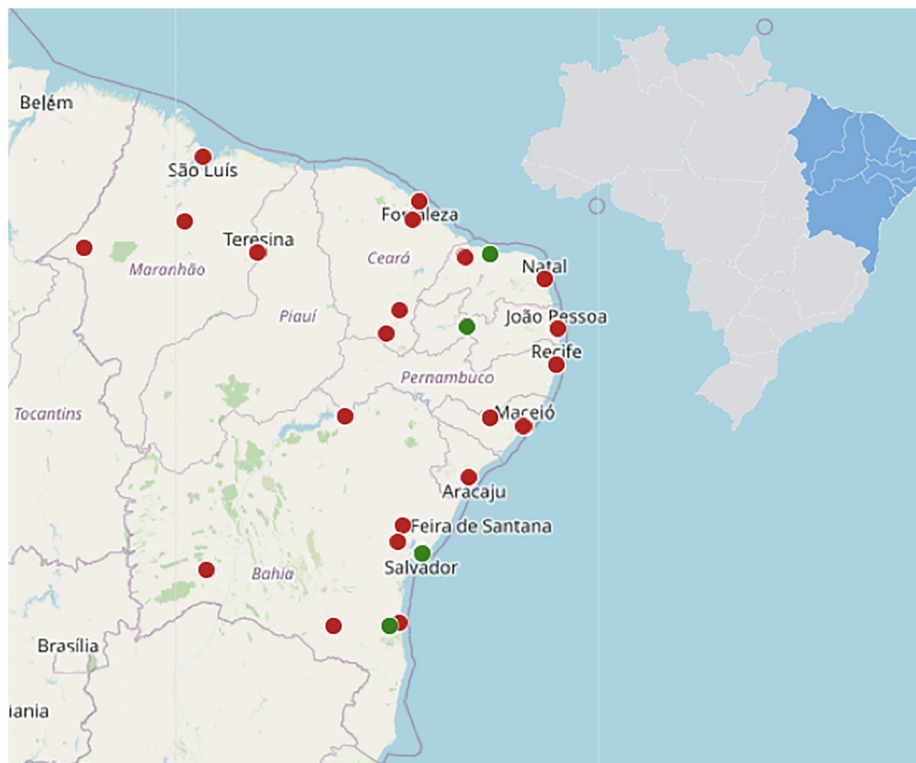


Figure 1.
Use of GAFAM
platforms in the
northeast of Brazil

Source: Educação Vigiada 3 on April 13th, 2022

Investigations carried out by the research network in UFBA (already indicated above) showed that professors were unaware of these actions or the mechanisms for protecting their data and that of their students.

Such actions must be widened in every institution, providing transparency to the legal document that constitutes part of the external governance system to regulate and monitor the platforms' actions in Brazil. So, constructing a critical perspective on how those environments function and learning how to protect data is fundamental, and it must be part of the discussion in professor practices whether being mediated by these artifacts or not.

In this scenario, educators highlighted the importance of formative actions to understand the process of platformization in which the society is inserted, especially education, which has been suffering harassment from Edtechs, which grew aligned with the neoliberal model (Norris, 2023; Selwyn, 2022; Birch and Bronson, 2022).

Professors and students must understand and approach the scenarios since we have no return; we live in what Lemos (2021) calls "datafication of life." These platforms, and even those focused on education, create recommendation systems to outline what has been called "adaptive learning."

Decuyper *et al.* (2021) indicate that architecture, intermediate and organizational dimensions, work logic and the conception of education are essential to understanding the teaching and learning process in the "platformization society."

The authors emphasize that these four keys are the foundations for building a critical view of digital education platforms which have also been called Ed-tech, a fetishized term, and that we need to be careful about this enchantment. In this essay, we will only highlight the architecture and the intermediate and organizational dimensions.

Architecture is constituted by technological systems that are not neutral but constitute spaces of contestation that negotiate the domains of education and activities to be developed.

Such activities aim to collect data to support learning recommendations for students and referrals for self-instruction practices, neglecting subjective aspects that mark the teaching and learning process, such as socialization processes.

The second key pointed out by the authors refers to the intermediate and organizational dimensions, which define, structure and streamline what counts as “valuable exchanges,” outlining specific forms of governance. These rules apply to human and nonhuman actors such as professors, administrators, students, parents, corporations, institutions and the government.

In the next section, we will present the scenario of EDM practices in Brazil concerning entering higher education, highlighting such actions at UFBA.

Education data mining practices in Brazil and at federal university of Bahia

EDM in Brazil is not recent. Still, it has already constituted a practice throughout the history of education (Baker *et al.*, 2021), such as the basic education assessment system (SAEB [8]), which, since 1990, periodically conducts a diagnosis of Brazilian education, identifying the factors that interfere with student performance. These data and the approval, failure and abandonment rates calculated through the school census outline the basic education development index (IDEB).

Other evaluative exams applied in Brazil:

ENEM – National High School Examination (1998); International Student Assessment Program (PISA) (2000); ENADE [9] – National Performance Examination for Students Completing Undergraduate Courses (2004); National Higher Assessment System and finally, the SISU (2004); Unified Selection System (2010); students’ grades obtained in this evaluation process.

Generally, these exams aim to mine data related to the performance of Brazilian students. The EDM consists of the analysis of patterns and visualization of data, which are presented in different formats and levels of granularity, aiming to support decision-making to propose policies for quality education in the country.

The first book published on EDM was *Data Mining in E-Learning* (Romero and Ventura, 2006), contributing to the creation of the *International Conference on Educational Data Mining* (2008), the *Journal of Educational Data Mining* (2009) and the publication of the *Handbook of Educational Data Mining* (Romero *et al.*, 2010), constituting essential milestones for the consolidation of EDM.

This latest book combines research and tutorials on the primary data mining techniques applied in education with information that can contribute to the learning process based on analyzing large volumes of data.

This essay will highlight the ENEM, created in 1998 [10], which aims to evaluate students’ performance at the end of basic education. Students use this score to enter Public and Private Higher Education Institutions and 50 Portuguese higher education institutions. The most competitive systems, such as medicine, require a minimum average of 800 points [11].

This exam is carried out annually through the SISU to evaluate students' performance, validating the learning built throughout their schooling.

Students annually in October or November, take a test that assesses knowledge in the areas of languages, codes and their technologies; human sciences and their technologies; natural sciences and their technologies; and mathematics and its technologies, with 180 questions and produce an argumentative-dissertation text based on a contemporary theme. The minimum score is 200, and the maximum is 1,000 points.

The algorithm used by ENEM is based on the Item Response Theory – TRI [12], which uses a mathematical model with three parameters (discrimination power, degree of difficulty and possibility of a random answer). The model does not focus on the number of correct answers obtained but on the student's response pattern to assess fundamental skills and reduce the chances of random correct answers in multiple-choice questions (Hambleton and Swaminathan, 1985).

The National Institute of Educational Studies and Research – INEP, responsible for preparing and applying the ENEM, has been concerned with ensuring the protection of student data and suppressing the possibility of personal identification in compliance with the rules provided for in the GDPL. However, the information of all evaluated students is being transferred to the Microsoft Azure Database, which is responsible for handling this information.

Silveira (2021) continuously criticizes this data colonialism, signaling the vulnerability of students' privacy, especially by making valuable information available to a Big Tech like Microsoft about the performance of Brazilian students, without users being aware of this data transfer and their possible uses.

Data of students who attended high school, such as the gross monthly family income of each one, the amounts received in various social programs, the grade in the Enem, and the population averages related to declared color and disabilities, among other sensitive information, were delivered to the Microsoft Azure platform. There is no evidence in public debates or among government managers that the US technology corporation has economic interests in the country and the Brazilian educational area itself, nor that it probably hosted the data on servers in the United States, in its so-called cloud public. Accessing and manipulating this data is acceptable. The authorities' notes must highlight the importance of specific contractual norms for adolescent data protection (Silveira, 2021, p. 39).

According to the author, INEP/MEC's main argument for data on the academic performance of the best Brazilian students to be processed and hosted in the Azure cloud (MS) refers to the high cost of keeping this data in a data center in the Ministry of Education (INEP/MEC) and possible savings of approximately 22 million reais in five years of the project.

Such data is collected without students and their parents understanding for what purposes it will be used by Microsoft (MS). Unfortunately, in this case, these users do not have the right to choose whether to authorize access or not, since to enter a university/college, they need their score to be generated, constituting a unidirectional process and without transparency on the part of those who collect the data. In this case, MS, with the endorsement of the Brazilian government instances, assumes the role of problem solver. This practice is entirely consistent with the neoliberal project that reinforces colonialism (Silveira, 2021), transferring the responsibility of managing problems in the public sphere to the private sector.

Another example of misappropriating data from professors and students in Brazil was reported in August 2023. The Department of Education of São Paulo, the country's central state, inserted the Minha Escola SP application without authorization – on the smartphones of professors who used the Android operating system without these users having installed

the program. This application stores students' data (name, subject grades and school attendance) (Leandro, 2023).

Unlike European countries that prevent transferring their citizens' data to the USA, Brazil still does not have this type of concern. Silveira says:

The access and manipulation of this data do not appear to be a problem. The authorities' notes do not even highlight the importance of specific contractual norms for data protection for adolescents (2021, p. 40).

In the face of these criticisms, INEP issued Technical Note No. 14/2021/CGIM/DAEB [13], highlighting the studies that pointed to the risk of identifying people in the data released on other exams, surveys and evaluations by INEP.

INEP intends to adjust the format for disseminating the National High School Examination microdata. However, the impasse continues without effective solutions to the abovementioned problem.

Data collection and mining at UFBA aim to identify the salary ranges of parents and students to enable access to the university with financial, housing and even equipment aid.

Issues related to ethnicity are also important, considering the quota policy adopted at the university for black and indigenous students and the definition of vacancies for people with disabilities. Thus, the sensitive data collected aim to guarantee the access and permanence of these students in the institution.

Data referring to grades subsidize the classification of students to benefit from changes in course research initiation grants, among other aspects. Students know and accept such actions, as they allow mobility and permanence within the university.

At UFBA, there needs to be more clarity about how this data is being used, especially during the pandemic. During this period, professors and students interacted with platforms such as Google Classroom, Google Meet and Zoom.

Such platforms have a more aggressive action in data collection to predict and model user behavior for different purposes. In the educational field, the justification is to evaluate student performance, offering feedback that can contribute to personalized and adaptive learning.

Capturing student performance data is already part of the educational dynamics, subsidizing professors' practice and proposing changes in their planning and evaluation systems so students learn meaningfully. However, with the datafication process and the presence of Big Techs in educational scenarios, the control made by educational institutions and their professors needs to be recovered. Most of the time, the data is stored in the data centers of these organizations in the USA, being used to meet the business model of these companies, making users vulnerable and without the option to choose whether or not their confidential data will be tracked and shared.

Existing data collection on platforms like Google and its integrated learning support systems use sophisticated tools to collect, predict and model user behavior for education, students and professors (Norris, 2023).

According to Jones *et al.*, although these practices promise to improve teaching, they raise ethical issues related to student privacy. To the authors

Some research promotes privacy principles to guide the practice of Learning Analytics, such as those related to transparency, consent, and data ownership (see Drachsler and Greller, 2016; Pardo and Siemens, 2014), while others address ethical issues related to privacy, such as equity and justice (see Scholes, 2016; Willis *et al.*, 2016). However, none of these bodies of literature address the deep theoretical roots of privacy (Jones *et al.*, 2020, p.2).

This situation points to the fragility of the Brazilian educational system at different levels, especially the absence of a data protection culture. Brazilian educational institutions needed robust systems to carry out remote activities and provide e-mails and file storage. Therefore, they negotiated these services with Big Techs. However, there needed to be more transparency about how data from professors, students and technicians would be used.

Rubel and Jones (2016) and Jones (2019) highlight that privacy is essential for the autonomy of users/students, as by reducing privacy, the capacity for human flourishing is restricted.

The issues and reflections discussed above reinforce the need to broaden the discussions and training processes of the various segments of education to understand the phenomenon of platformization and the biases present in the algorithms of these platforms, to build a critical look and have a more efficient performance for data protection practices and policies.

Higher education should address the issue discussed in this essay as it is responsible for training new professionals and professors. We intend to subsidize the institutions involved in the research, with training processes, to contribute to opening the black box in environments linked to large companies, especially GAFAM.

Thus, we intend to outline practices that preserve data from professors, students, technicians and learning dynamics that go beyond modeling behaviors and mapping profiles through EDM and LA practices, enabling students especially “to follow an educational program according to their interests” (Jones, 2019, p. 2).

In this context, the Research Network Virtual Communities – UFBA [14], held from April to July 2023, the course called Platformization of Life – Digital Culture and Education, for students and professors of UFBA and other interested institutions, aims to discuss and deepen issues related to practices of EDM, LA, among others, supporting more critical stances toward the datafication process in the academic scenario, in tune with the discussions presented by Jones (2019) on the relationship between privacy and autonomy.

This course emerged as a response to the scenario found in the institutions mentioned in the introduction of this work, where a survey of 327 education professionals showed that 56% had not followed discussions about platformization, that 71% were already using digital environments, such as Moodle or Google Classroom, between others. Figure 2 indicates professors’ level of knowledge about the GPDL.

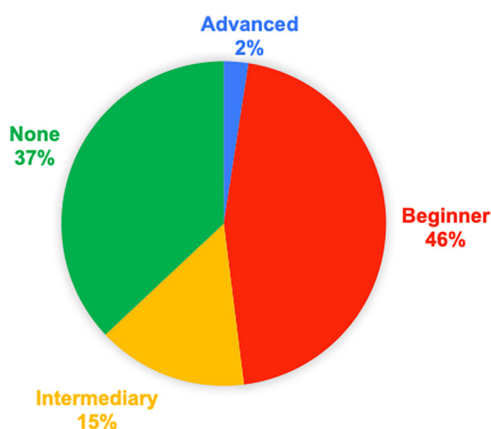


Figure 2.
Professors and GPDL

Source: Created by authors

Figure 3 indicates the responses about the environments and tools used by professors during the remote teaching period.

Professors were asked whether they were following discussions regarding datafication processes. The data indicated that 69% of these professionals did not follow, and 77% did not discuss this topic with their students.

Regarding the desire and need to participate in training processes that discuss these topics, 72% of professors demonstrated an interest in training. To meet this demand, we ran the platformization of life – digital culture and education course that served 50 professors and researchers linked to Bahia, Rio de Janeiro, São Paulo and Santa Catarina public institutions.

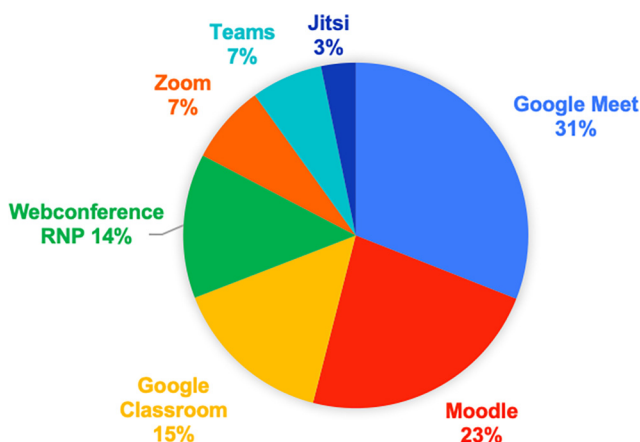
Recommendations and limitations

Given the context presented above and the possible consequences that educational platforms can generate, it is essential to create spaces for discussion about the phenomenon of platformization in education, highlighting the datafication process implicit in this logic, to allow and encourage a more critical attitude on the part of students, family members, professionals and educational institutions.

To this end, it is believed that the continuous implementation of training courses, similar to what was carried out by the researchers who authored this essay (Platformization of Life – Digital Culture and Education), is a sine qua non condition, to broaden the debate and strengthen practices critical and effective responses from professors in the face of the setbacks of platformization in education.

Another fundamental approach is to disseminate this discussion to different levels of education, with emphasis on courses that train professors and professionals in the area of computing, contributing to the basic construction of a critical outlook and stance in this field, strengthening the demands around transparency algorithms, data protection and security, among other fundamental aspects, to build more ethical and fair practices with the mediation of platforms.

An educational institution must guarantee the care of the data of its professors, students and other professionals. This aspect is linked to professors' and students' need for more



Source: Created by authors

Figure 3.
Environments and
tools

excellent knowledge regarding the platformization of contemporary society and data protection.

Finally, this context requires democratic and effective regulation of platformization by institutions, enabling users to understand how their data is collected and the central black box mechanisms that hide the action of algorithms in the datafication process.

Governmental and legal changes can only materialize with knowledge and mobilization.

Fostering the debate of these discussions in society, especially in education, can contribute to confrontations that mobilize government agencies to create more effective regulatory frameworks.

This essay presents the limitations below that will be overcome in the continuation of the research

- The qualitative research involved a limited number of professors per institution.
- The results of ongoing research have yet to make it possible to analyze the impacts of the mediation of digital platforms in the postpandemic period.
- The referrals in the teaching practice of participants in the Platformization of Life – Digital Culture and Education course are still being investigated.
- Investigations into data literacy are still ongoing.

Thus, the discussions, analyses and reflections presented in this essay refer to the partial results of the ongoing research *Digital Teaching Platforms: a case study of the interaction of professors at universities and institutes in the Northeast*, financed by CNPq and aimed to socialize with the academic community aspects that have been tensioning issues related to platformization and datafication in Brazilian education, focusing on the northeast region, supporting new reflections and possible advances in the critical points and tensions present in this relationship.

Conclusions

The theoretical essay presented here highlights that countries in the global south, especially Brazil, have a strong presence of Big Techs, strengthening the consolidation of Edtechs, especially after the COVID-19 pandemic. With the pandemic, the datafication process was enhanced, leading educational institutions to enter this scenario as quickly as possible to allow students to continue accessing teaching and learning practices through remote teaching.

Almost immediately, Big Techs supplied tools to the global market to subsidize this new educational model, initially providing unlimited and, in a certain way, free space in their Drive (also as a means to publicize its services and establish customer retention). In the case of Google, this pseudo-gratuity will be withdrawn in Brazil in July 2022 because the institutions did not know how to use the storage optimally (Charles, 2022b).

As discussed in this essay, Big Techs expanded greatly during the pandemic through teaching platforms, consolidating itself in most Brazilian public educational institutions.

Interviews with UFBA professors and students (in the research indicated in this essay) showed the predominance of interaction with proprietary platforms, especially Google Classroom and Meet. This situation leads us to question why synchronous environments such as Jitsi (free software) and the RNP Web conference were not the first choices of professors participating in the investigation.

The discussions presented in this essay also revealed data collection and exfiltration practices that do not consider the rights and desires of users, especially in the area of Education. However, the GPDL has been in force since September 2020. The National Data

Protection Authority has been in place since August 2021, applying sanctions and supervising illicit practices that violate Brazilians' security and data protection.

There also needed to be more discussions and pedagogical training on managing these systems, their terms of use and the GDPL, which could contribute to violating users' rights in this field.

In this way, it can be concluded that the accelerated platformization process made users become hostages to this process, making it impossible to have great discussions about the business models adopted for the management and protection of the data generated.

Due to the accelerated process of platformization, users became hostages to the process, blocking wide-ranging discussions about the business models adopted and the management and protection of generated data.

Considering the continental proportions of Brazil, its social inequalities and the precariousness of public Education that the country has been experiencing, we found the difficulties faced by students and professors during the remote teaching process, including the need for more data literacy. According to the data presented, professors from universities and institutions who were interviewed for the research that is still ongoing.

Recently, in January 2023, Brazil sanctioned Law no. 14.533, which establishes the National Digital Education Policy, which aims to promote the initial training of elementary and higher education teachers in digital skills linked to digital citizenship and the ability to use technology.

Another aspect highlighted in the law refers to implementing a network of teaching programs, refresher courses and short-term continuing training in digital skills to be offered throughout professional life. Through this law, investments can be made in training education professionals, and practices using free software will be more widespread within government institutions.

The context presented highlights the pressing need for government managers from the three branches of government – Executive, Legislative and Judiciary – to monitor the actions, governance systems and business models of large Big Techs, particularly their role in education. The current global and Brazilian scenario witnesses discussions about the regulation of digital platforms [15], but, symptomatically, many vital actors in Brazil, such as the Ministry of Education, Education Secretariats, rectors and vice-rectors of universities, as well as associations such as ANPED – National Association for Research in Education [16], remain disconnected from this crucial discourse.

Discussions about platformization, especially in education, often originate from investigations in communication.

It is imperative that educational institutions, both public and private, at all levels of education, actively engage in these conversations. They should identify fundamental aspects to be integrated into the regulatory framework of the digital educational platforms sector, including:

- The need for transparent and non-discriminatory Learning Analytics practices that make users aware of the metrics they see being used for these purposes.
- Promote teaching and learning models mediated by platforms that incorporate a historical-cultural psychology approach, making them more democratic and equitable.
- Establish transparent data collection and processing systems that respect the privacy and security of data from students, teachers, professors and technical-administrative teams of educational institutions.

- The implementation of interdisciplinary continuing education programs to support the professional development of teachers and professors at all levels of education, enabling the creation of critical pedagogical practices that consider data protection and security policies, as well as social, legal, environmental, pedagogical, psychological and issues related to misinformation that shape contemporary society.
- The creation of training processes that promote “data literacy,” as well as regulatory incentives for the more effective use of free software through public policies that directly involve actions in educational institutions and other government structures.
- The formation of national and regional committees responsible for monitoring and evaluating the performance of Big Tech and its Edtech in Brazilian education, ensuring transparency in the teaching and learning process mediated by platforms.

Furthermore, the active involvement of parents, students and representatives of the educational sector in the regulation of digital platforms is essential, contributing to and promoting the design of an educational policy that questions and combats algorithmic prejudices, attention and the psychological economy imposed by these platforms, safeguarding all individuals involved in education and promoting fair and democratic policies driven by these technologies. Awareness and active participation of all stakeholders are essential foundations for developing a safer, more equitable and effective digital educational environment.

Notes

1. www.gov.br/anpd/pt-br
2. www.gov.br/anpd/pt-br/assuntos/noticias/anpd-publica-regulamento-de-dosimetria/Resolucao4CDANPD24.02.2023.pdf
3. <https://lgpd.ufba.br/comite-de-adequacao>
4. Cuts put more than 30 federal universities at risk. Published on February 11, 2022. Available from <http://apub.org.br/cortes-colocaram-em-risco-mais-de-30-universidades-federais/>. [Accessed 10 February 2022].
5. Available from <https://lgpd.ufba.br/videos>. [Accessed 3 March 2023].
6. Available from www.youtube.com/live/CXXjSV9WccE?feature=share. [Accessed 18 November 2021]
7. General Law for the Protection of Personal Data (GDPL - UFBA). Available from <https://lgpd.ufba.br/>. [Accessed 2 January 2022].
8. Available from URL: www.gov.br/inep/pt-br/areas-de-atuacao/avaliacao-e-exames-educacionais/saeb. [Accessed 4 March 2023].
9. Available from www.gov.br/inep/pt-br/areas-de-atuacao/avaliacao-e-exames-educacionais/enade/historico. [Accessed 3 March 2023].
10. www.gov.br/inep/pt-br/areas-de-atuacao/avaliacao-e-exames-educacionais/enem
11. Average required by Brazilian universities, including UFBA, in the 2022 ENEM to enter the medical course. Available from <https://blogdoenem.com.br/notas-de-corte-sisu-medicina/>. [Accessed 22 February 2023].

12. <http://portal.mec.gov.br/component/tags/tag/34530>
13. https://download.inep.gov.br/microdados/nota_tecnica_14-2021_daeb.pdf
14. The authors of this essay are researchers linked to this network. The network's research can be viewed at the URL: www.comunidadesvirtuais.ufba.br/
15. In Brazil, the actions of the Working Group on Educational Platforms of the Internet Steering Committee in Brazil (CGI.br) have been prominent since 2021.
16. In the document "Regulation of Digital Platforms in Brazil – Position of Civil Society Organizations Gathered in the Anti-Disinformation Coordination Room," published in 2023, out of the 100 signatories, there was no specific association from the primary education, university, or educational research sector. However, many institutions that signed the document engage more broadly with education.
17. Observatório Educação Vigiada (Figure 1). Available from <https://educacaovigiada.org.br/pt/sobre.html>. [Accessed 10 May 2022].

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Further reading

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