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From the Digital School Secretariat to total Business Intelligence: platformization in the São Paulo state network

Da Secretaria Escolar Digital ao Business Intelligence total: plataformização na rede estadual paulista

De la Secretaría Escolar Digital al Business Intelligence total: la plataformización en la red del estado de São Paulo

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Abstract: In this text we investigate the platformization process in the state education network of São Paulo. Based on data from research that explores the impact of these changes on the management practices of school principals. The analyzes indicate that the platformization of the São Paulo network has caused significant transformations in school management, with greater emphasis on New Public Management devices. These changes have resulted in hyper-bureaucratization of school processes and converted school management into a type of digital accountability management exercised by platforms.

Keywords: Platformization, School Management, São Paulo Education State Network.

Resumo: *Neste texto investigamos o processo de plataformização na rede estadual de ensino de São Paulo. Com base em dados de pesquisa, examinamos o impacto dessas mudanças nas práticas de gestão de diretores/as de escola. As análises indicam que a plataformização da rede tem provocado significativas transformações na gestão escolar, com maior ênfase nos dispositivos da Nova Gestão Pública. Essas mudanças têm resultado em uma hiperburocratização dos processos escolares e convertido a direção escolar em um tipo de gerência do accountability digital exercido pelas plataformas.*

Palavras-chave: *Plataformização, Gestão Escolar, Rede Estadual Paulista.*

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Resumen: *En este texto investigamos el proceso de plataformización en la red educativa estatal de São Paulo. Con base en datos de investigación, examinamos el impacto de estos cambios en las prácticas de gestión de los directores de escuelas. Los análisis indican que la plataformización de la red ha provocado transformaciones significativas en la gestión escolar, con mayor énfasis en los dispositivos de Nueva Gestión Pública. Estos cambios han resultado en una hiperburocratización de los procesos escolares y han convertido la gestión escolar en un tipo de gestión de rendición de cuentas digital ejercida por plataformas.*

Palabras clave: *Plataformización, Gestión Escolar, Red educativa estatal de São Paulo.*

INTRODUCTION

This article analyzes the emerging process of platformization of education, as discussed by Van Dijck and Thomas Poell (2018), in the context of school management in the São Paulo state network. The growing integration of educational technologies in the network schools has generated significant transformations in the teaching and learning processes and in the conception and conduct of school management.

The educational reforms of the last decades have introduced significant changes in the relationship among curriculum, pedagogy, and evaluation, driven by the adoption of managerialist devices that seek to control and rationalize teaching work. In this context, the managerial logic is manifested in the emphasis on measurable results and the standardization of educational processes, promoting an instrumental view of education, in which educational processes are subordinated to mechanisms of surveillance, evaluation, and accountability, to the detriment of the complexity and diversity of pedagogical practices (Jacomini, Carneiro, Rodrigues, Silva, 2021; Jacomini, Girotto, Barbosa, Stoco, 2021; Jacomini, Perrella, Alencar, Stoco, 2022; Carneiro, Jacomini, Bello, 2023; Jacomini, Nascimento, Stoco, 2023).

The research that supported the writing of this article involved bibliographic and documentary study and field research through semi-structured interviews with 10 school principals[3]. In this research, the process of re-elaboration of the conception of school management was investigated, especially regarding school management, because of the educational reforms implemented between 2007 and 2023 by the São Paulo State Department of Education (Seduc-SP) (Maldonado, 2024). The study allowed us to verify that there was a re-elaboration of the conception of school management in the São Paulo state network due to the introduction and deepening of New Public Management (NGP) devices (Rizvi; Lingard, 2013; Paro, 2015; Verger; Normand, 2015).

3 This is doctoral research (Maldonado, 2024).

This new way of thinking and doing school management aims to establish a new governability in the network, reinforcing administrative mechanisms and conforming school management to managerial practices. This change sought to transform teaching practices in the classroom, aligning teachers' performance with reformist objectives, especially regarding applying the São Paulo Curriculum and standardized assessments (Maldonado, 2024).

The increase in vigilance over the minutiae of daily school life occurred as a strategy of power and governability, aiming to establish a finer, more precise, millimeter control of school management. The new management control devices should enter the classroom to align teachers' performance and implement a conception of school education linked to the measurement of learning in standardized assessments under the logic of results management. Or even, as defined by Jacomini *et al.* (2021), to improve the functioning of the "managerial-curricular machine of standardization, control and *accountability*" of the State Department of Education (Seduc-SP).

The testimonies of the interviewed principals revealed the perception of intensification of remote monitoring of schools, driven by the increase in the use of Digital Information and Communication Technologies (DICTs). Incorporating new technological resources, especially the functionalities of digital educational platforms, has been a principal component in the reform process, redefining and outlining the current school management project of Seduc-SP.

As new technologies have occupied the center of teachers' and managers' concerns, we seek in this article to analyze the process of platformization in the São Paulo state network, especially its implications for the interrelationship between curriculum, teaching work, and evaluations.

We begin with brief reflections on digital platforms, followed by a survey of the history of appropriation and implementation of technological resources in the São Paulo state network to conceive a panel that illustrates the process. Then, we classify the devices based on their forms of use and properties.

We will highlight the Digital School Secretariat (SED) and the *Business Intelligence* Total Panel (BI). Due to the limits of this text and the available data, we will give greater emphasis to the analysis of the effects of the policy related to the Digital School Secretariat (SED), while in the case of BI, we will concentrate the study on the forms and possibilities of action of this device.

REFLECTIONS ON PLATFORMS AND THE PLATFORMIZATION OF EDUCATION

It is difficult to conceive of any aspect of contemporary life that is not crossed by the presence of Big Techs and their platforms. According to Rosenfield and Almeida (2021), the phenomenon of platformization includes a multiplicity of approaches. For the authors, in other aspects,

> It is possible to discuss it from the perspectives of datafication or surveillance, financialization, and the role of algorithms, among others. What crosscuts the phenomenon in the various approaches is the algorithmic management of work, invisible and constant worker surveillance, and data extraction and its incorporation into capital (Rosenfield, Almeida, 2021, p. 9).

Morozov (2018) argues that, at the current stage and in the predictions for the near future of capitalism, it is evident that few sectors will escape from the influence of digital platforms. For Antunes and Filgueiras (2020), currently

> It is difficult to find any work that does not have some form of interaction and dependence on cell phones, computers, smartphones, and the management practiced in the modes of the platforms has become potentially expandable to a massive set of branches of sectors (Antunes; Filgueiras, 2020, p. 74).

The field of education also debates the appropriation and use of new technologies in its teaching, learning, and school management processes. The growing prominence of these systems increases the need for critical research, which explores the realities of using institutional technology in schools. For Selwyn (2011),

> As is almost always the case with the use of technology in education, popular and academic discussions about these integrated systems have been accompanied by a series of exaggerated expectations and promises of substantial improvement and transformation – most notably increased educational "engagement" of students and parents, high levels of school "performance" and teacher productivity, and the general "democratization" of school processes through the "open" sharing of data from administration and management of learning (Selwyn, 2011, p. 474).

The present educational platforms encompass a variety of functions, including management information systems, which encompass tasks such as payroll records, budgeting, accounting, class schedules, scheduling, and planning, as well as managing student attendance, enrollment, and admissions. Regarding curricular organization and pedagogy, school learning management systems and virtual learning environments have been used as platforms for sharing information and resources.

Today, the school has been articulated with the economy and business standards of organization, relativizing the formative action demanded by the training for the market (Laval, 2019). And in the scope of the market, the management system by TDICs has intensified, as it manages the profusion of data produced by information technology and its use to regulate decision-making. In this sense, leadership, in the context of educational policies, is related to organizational redesign to concentrate individuals in practices to increase the organization productivity and raise the system levels (Ball, 2014).

The new management forms take on the characteristics of a rational-informational authority, facilitated by information technologies and their digital control and surveillance mechanisms (Lima, 2021), which have significantly expanded the state capacities for monitoring and using information.

This leads to increased vigilance, guiding approaches based on a vision of educational excellence associated with dominant ideas that function as criteria of competence and responsibility. These practices are articulated and mobilized through "multiple forms of evaluation, publication of school *rankings*, and school marketing strategies" (Afonso, 2021, p. 9), which results in a hyper-bureaucratization of processes (Lima, 2012) within a logic called by Afonso (2021) as an expression of *digital accountability*.

Following the same logic of surveillance capitalism, platformization allows data collection from teachers, students, and managers. Many of this data are produced and provided free to large technology companies, allowing the data generated to be used in different ways and become profitable surpluses (Van Dijck; Poell, 2018). Thus, as Barbosa and Alves (2023) warn,

> In contemporary digital culture, social relations mediated by algorithms on digital platforms allow for the fiercer establishment of behavior patterns, thoughts, and desires, which become commodities. The cycle of accumulation occurs from the extraction and control of data through algorithmically calculated digital devices made available by the so-called Big Techs, the big technology companies. In the digital culture of the 21st century, the digital arsenal makes up the capitalist mode of production based on relations of greater control and surveillance (Barbosa and Alves, 2023, p. 8)

In this sense, it is necessary to consider that technology "is essentially a derivative of the production system, it contains [therefore] a 'virus' in its epistemic nature, that is, the mercantile logic and the disciplining of the labor force, including the future labor force, which today's students represent" (Gjergji; Denunzio, 2023, p. 277).

TECHNOLOGY IN THE ORGANIZATIONAL REDESIGN OF THE SÃO PAULO NETWORK

Digital informational devices have played a key role in contemporary schooling, at least in the last two decades, by facilitating access to information, promoting collaboration and communication, developing digital skills, driving innovation, and promising to personalize learning and boost educational innovation.

Digital technologies, in particular computers and the internet, are now an integral part, a ubiquitous element of contemporary schools and schooling. However, although the educational significance of digital technology is generally discussed in terms of the curriculum, i.e., in terms of enhancing teaching and learning processes, a substantial part of the use of digital technology in schools is managerial and administrative in nature (Selwyn, 2011). This can be explained by the contemporary characteristics of the information society, which are marked by the production of a large amount of data, from which new management and analysis devices transform it into relevant information and support administrative decisions.

We suppose that the progressive adoption of DICT devices has promoted changes in teaching and learning practices and influenced the forms and strategies of school management. In that case, it is necessary to evaluate the internal process of changes and verify how these devices are used. Chart 1 presents an excerpt of the recent history regarding the adoption of DICTs in the daily life of the São Paulo state network:

Table 1 - Platforms and their legislation

Platform, *website*, application, or device	Date	Resolution Legislation	Key features/summary
Dynamic Management of School Administration (GDAE)[4]	2002	Resolution SE 108/02	An integrated information system was created to streamline and integrate the administrative and managerial data of the Secretariat[5].
Acessa Escola Program	2008		The program offers computer and internet access rooms for students, school staff, and the community.
EFAP (School for Teacher Training and Improvement)	2009	Decree No. 54,297, of May 5, 2009.	EFAP's courses combine distance learning, through videoconferences and virtual learning environments (VLE), with face-to-face activities.
Google Agreement[6]	2013		Educational technological tools for students and teachers (e*mail accounts*) and school transmission channels (hangout).
Microsoft Agreement – SEE-SP[7]	Announced in 2013 and implemented in 2014		An agreement of cooperation with Microsoft establishes the free offer of five licenses of the Office package (with programs such as Word, Windows, and PowerPoint) for each of the students from São Paulo.
Evesp (Virtual School of Educational Programs).	Announced in 2011 and implemented in 2013	SE Resolution No. 48 of 7-22-2011	Evesp (Virtual School of Educational Programs) offers *online courses* in Civil Defense: The Adventure, Pounds, English, and entrance exam revision.
Digital School Secretariat (SED)	2013	Resolution SE 82, of 12-18-2013	A platform that converts into a digital format and concentrates most of the school administrative processes in a single place.
New technologies New possibilities - Curriculum +	2014		A platform (Curriculum +) that aims to stimulate pedagogical innovation through digital content, such as games, infographics, animations, and videos. In 2021, it will become a repository of digital teaching materials for teachers in the network.
Focus Learning Platform	2016	SE Resolution No. 40, of June 3, 2016.	Developed in partnership with the Pedagogical Coordination (Coped), the platform identifies students skills and competencies. To reach this, the tool uses the results of Saresp (School Performance Assessment System of the State of São Paulo) and the bimonthly AP (Learning Assessment) test.

4 The terms written in red refer to the name by which the platform is most easily recognized in the school community.

5 Available at: https://www.saopaulo.sp.gov.br/eventos/educacao-sistema-garante-informacoes-sobre-os-alunos-concluintes-de-cursos-das-redes-particular-m/. Accessed on: May 18, 2024.

6 Available at: https://www.saopaulo.sp.gov.br/sala-de-imprensa/release/alckmin-anuncia-ferramentas-tecnologicas-educacionais-para-alunos-e-professores/. Accessed on: May 18, 2024.

7 Available at: https://www.educacao.sp.gov.br/parceria-entre-educacao-e-microsoft-levara-pacote-de-tecnologia-e-4-milhoes-de-alunos/. Accessed on: May 18, 2024.

Table 1 - Platforms and their legislation

Platform, *website*, application, or device	Date	Resolution Legislation	Key features/summary
My School SP	2018		Minha Escola SP allows monitoring of daily school life through a cell phone application. The application allows: consultation of enrollment history; consultation of the bulletin; simplified visualization of the notes; student card; evaluation of school meals, and student re-enrollment.
SP Paperless Program	2019	Decree No. 64,355, of July 31, 2019.	A platform that digitizes the processing of documents through the Public Administration and the relationship between the state, municipalities, and entities.
Class Diary – SP	2020	Resolution SE 16, of January 31, 2020.	Registration of classes, evaluations, and the daily attendance of students digitally, using a specific module of the Digital School Secretariat (SED) platform or a mobile application.
Google Classroom	2020		Google's virtual teaching platform allows teachers to create online classrooms, assign assignments, provide feedback, and interact with students. Teachers and students adopted it during the COVID-19 pandemic, with data made available by Seduc-SP.
Media Center – SP (CMSP)	2020	Seduc Resolution No. 101, of 12-30-2020 SE Resolution No. 100, of 12-29-2020 Seduc Resolution No. 99, of 12-23-2020 Seduc Resolution No. 57, of 6-30-2020 Seduc Resolution No. 53, of 6-19-2020	An *online* platform created to centralize, streamline, and facilitate all operations that involve the daily management of life in schools. The platform offers classes broadcast on open TV and access to internet for students from the state network of São Paulo, complementing face-to-face classes during the pandemic.
Technology and Innovation Support Project	2021	Resolution Seduc-7, of 11-1-2021	Project to encourage the development and use of educational technologies and the adoption of innovative pedagogical practices that ensure the improvement of school flow and learning
Digital Didactic Material	2023		Digital material from the Department of Education of the State of São Paulo (Seduc-SP) for basic general training, aligned with standardized assessments.
BI (Business Intelligence) Platform	2023		An online *platform* that offers free video classes and exercises in various areas of knowledge, complementing face-to-face teaching.

Source: prepared by the authors based on the respective legislation and information on the Seduc-SP website.

In addition to the brief characterization of the platforms presented in the table above, we classify the technological devices used by Seduc-SP in the period from 2002 to 2023 into three groups, according to the function that these technologies have played in school activities, namely:

a) School management aid devices: act as support for formalized, technically developed, and rationalized procedures that regulate the daily operations of school institutions. These devices digitize the school's bureaucratic processes, such as enrollment, student report cards, teacher class diary, subject curriculum, student identification card, among others. In general, they centralize access to data and facilitate the sharing and regulation of administrative processes between the Department of Education and the school. On this list, we can mention, among others, the Digital School Secretariat, which brings together access to the school's data and administrative processes, in addition to other devices, such as GDAE, Sem Papel, Minha Escola SP, and the Class Diary.

b) Mediation and gamification devices for teaching and learning processes: these devices provide access to online content and classes, with digital learning objects (DLOs), and assist in mediating pedagogical processes. They include technologies such as the Virtual School of Educational Programs of the State of São Paulo (Evesp), Efap courses, the Media Center – SP (CMSP), Curriculum +, Digital Material, and content applications from the BI Panel. Some of these devices are characterized by the algorithmic mediation of the teaching and learning process, that is, they do not require the performance of a school teacher. They can make use of AI as a pedagogical resource.

c) Curriculum monitoring and evaluation devices: these devices aim to organize and present learning results, design standardized assessment indices and goals, and identify gaps in training processes. They are tools for digital control and *accountability*. An example is the Foco Aprendizagem Platform, which systematizes learning outcomes in *dashboards* and other forms of expression, facilitating the monitoring of students' progress and the identification of areas for improvement; or even the Digital School Secretariat, regarding curriculum control, or even *Business Intelligence* (BI).

Information infrastructure devices also act transversely to the groups mentioned above, which can be defined as tools, technologies, or systems that allow information collection, storage, organization, processing, and dissemination within a specific structure. These devices form the basis sustain the flow and management of data, enabling the operationalization and integration of digital systems. In the context of education in São Paulo, we can mention the Acessa Escola Program, the Technology and Innovation Support Project, Google Classroom, and the agreement

with Microsoft. Thus, it is observed that school management and the teaching, learning, and evaluation processes are guided by digital devices, through which the actions of managers, teachers, and students are monitored to fulfill the goals established by Seduc-SP.

The platforms and their features offer a multitude of possibilities. However, it is interesting that two of these devices, configured as platforms, have been gradually integrating into a series of functions and centralizing school processes. Based on this unifying and centralizing characteristic, and considering the limitations of this article, we will focus our analysis on the SED and the BI Panel. This choice is justified by the finding that these devices represent a transformation process in the São Paulo network, indicative of a digital reconfiguration in school management and the platformization of the network (Maldonado, 2024). Thus, understanding these elements can provide important clues about the new forms and organizational structures that arise from the interactions between technology and social structures.

In addition, according to Selwyn (2011), educational research on the use of technologies in schools has focused on analyzing devices aimed at teaching and learning, while the understanding of the technological (re)configuration of the school—that is, of the new management and administration processes mediated by DICTs—remains comparatively underdeveloped.

Thus, to broaden the debate proposed by the school principals investigated in the research that supported the writing of this article about the process of platformization of education in São Paulo, we seek to answer the following questions: What are the most significant changes that the platforms have promoted? In addition, can we treat the phenomenon of platformization as a digital reconfiguration of school management? If so, what new role is reserved for school management?

THE DIGITAL SCHOOL SECRETARIAT (SED)

The SED Platform was created in 2014 and officially established in 2016. Conceived as a school management device, Article 1, paragraph 1, of Resolution SE 36/2016 details its purposes:

> Article 1 The "Digital School Secretariat" (SED) platform is hereby established within the scope of the Department of Education—SE computerized systems to offer mechanisms that facilitate school management and monitoring, provide educators and education professionals with new and dynamic possibilities of action, and consequently benefit students by improving the quality of teaching and learning.
> Paragraph 1—The SED platform consists of a management tool with several dimensions to be used by the central bodies of the Department of Education, the Education Boards, and the schools of the education system of the State of São Paulo.

Also, according to this Resolution, the SED has the potential to

> the improvement of management and work through the incorporation of new functionalities and modules, enabling the inclusion of innovative services, such as the standardization of procedures and routines of school secretariats, monitoring the insertion and validation of data and information on the platform (São Paulo, 2016).

According to the Resolution, the school board is responsible for ratifying the curricular matrices of the types and modalities of education offered by the school units, while the Basic Education Management Coordination (CGEB) is responsible for monitoring the flow of the process carried out by the schools and Education Boards for the approval of the curricular matrices.

In several passages of the Resolution that regulates the institution and operation of the SED, the idea of a new management instrument is reinforced, strengthening the responsibility of the school board to feed the data system and to compose a digital and electronically accessible sample of the main elements and processes of the school management. It is also responsibility of the board to guide and supervise the registration and insertion of information, from the students' medical records, with the data of their families, to the assignment of classes to teachers, the organization of the curriculum, the students' grades in internal evaluations, the entry and exit of resources, the didactic project, among others.

The SED has the power to authorize the use of teaching materials in the classroom, thus exercising control over how the official curriculum is applied and interfering in the freedom of teachers to exercise their pedagogical practice. The platform makes it possible to control the teaching activity during meetings and planning, since part of the Collective Pedagogical Work Classes (ATPC) hours are carried out remotely by the São Paulo Media Center, with an agenda defined by Seduc-SP. In addition, the planning of classes must consider the São Paulo Curriculum and the platforms' content, while the management's actions are monitored. Going further, SED brings together the daily production of assessment data and integrates the curriculum into a policy of results, which can result in unprecedented school control.

By means of the platform, in a centralized way, continuous monitoring of the school routines is established, and the school evaluation processes are developed throughout the year. In the SED, the Diagnostic Entry Assessment (ADE), the corrective actions of the Results Improvement Method (MMR), the records of the Basic Education Development Index (Ideb), the Results Evaluation System of the State of São Paulo (Saresp) and the contents of the São Paulo Curriculum (CP)

are registered, gathering all devices that structure evidence-based management, a principle that subsidizes, as stated by the official discourse, the decision-making of school management in the São Paulo state network[8].

In the context of the changes brought about by the SED, the principal's performance is impacted by demands that privilege the control of data, the centralization of information, and the operationalization of platforms. These demands often shift the principal's focus from the pedagogical and human dimensions of school management. This phenomenon is consistent with advancing the New Public Management (NPM) logics, prioritizing efficiency, standardization, and *accountability* in educational work.

BUSINESS INTELLIGENCE

Unlike SED, which generally promotes the digitization and centralization of processes historically consolidated in school management practices through its platform, Business Intelligence originated in the corporate world, within the scope of business administration. *Business Intelligence* (BI) dates back to the 1950s and 1960s, when data processing systems began to be developed to help businesses collect and analyze large volumes of information. According to Rikhardsson and Yigitbasioglu (2018), BI can be described as an umbrella term. This umbrella concept encompasses various technology organizations and approaches to capture internal and external data, prepares it for analysis, and presents it to end users through visualization systems and *dashboards*. Salimon and Macedo (2017) define BI as

> a set of methodologies, processes, and technologies that are employed to collect, integrate, analyze, and make available data, transforming it into meaningful and valuable information to enable more effective "strategic, tactical, and operational insights" and decision-making (Salimon; Macedo, 2017, p. 32).

In a complementary way, we can define BI as the collection of information from internal and external data sources and the storage and analysis to make it measurable, to assist and sustain more efficient and longitudinal decision-making. Thus, it is linked to the processes of collection, storage, and processing of the institutions data (*Data Warehouse Model*) (Kimball; Ross, 2013).

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8 The process of platformization of education in the São Paulo state network was intensified after the election of Tarcísio de Freitas, governor of the state, and the appointment of Renato Feder as secretary of education. Just as some policies were abandoned, such as the MMR, others were introduced, especially content platforms for the realization of curricular components of the training itineraries, resulting from the Reform of Secondary Education. Because of constant changes, it is important to reinforce that the data presented and the analyses carried out in this article contemplate what was in force until 2023.

BI is intrinsically linked to data management and processing tools and its importance grew significantly after the 1990s. The development of DICTs, the explosion in data production, and the emergence of specialized data analysis and processing tools drove this growth. Regarding the goals of BI, the introduction to Kimball and Ross' (2013) work, *The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling*, offers us clues about the goals of *data warehouse* and BI tools:

- "We collected tons of data but couldn't access it".
- "We need to divide the data in every way".
- "Business owners need to get the data easily".
- "Just show me what's important".
- "We spend entire meetings arguing about who has the right numbers instead of making decisions".
- "We want people to use information to support more fact-based decisions".

Based on our experience, these concerns are still so universal that they drive the fundamental requirements for the DW (*Data Warehouse*)/BI (*Business Intelligence*) system (Kimball; Ross, 2013, p. 3).

The BI method or devices are currently packaged as software tools made available by large companies in the sector, such as Google, Microsoft, and IBM, among others. The tool is oriented to various sectors and specific activities. Even before Seduc-SP adopted the BI Panel—Escola Total, other São Paulo public administration bodies had already adhered to it.

BI in São Paulo education is not a recent project either. News from the Seduc-SP communication portal, on November 27, 2013[9], informed that the Secretariat, through its Coordination of Information, Monitoring and Educational Evaluation (Cima), had been awarded for implementing EduDados, Seduc-SP's data storage program. Also, according to the news, the *data warehouse* was considered the "Best Application for Information Dissemination" in 2013 by *MicroStrategy*, the world's leading provider of *business* intelligence *software*. Through EduDados, it was possible to consult schools by region, in addition to information such as the number and profile of students, the evaluation by attendance and grades, and the staff of the school unit. In this way, the platform worked as a precursor to the Digital School Secretariat.

9 Available at: https://www.educacao.sp.gov.br/plataforma-de-armazenamento-de-dados-da-educacao-ganha-premio-por-bom-desempenho/. Accessed on: 8 May 2024.

Before EduDados, the Open Data program of the São Paulo State Department of Education developed a portal as a public tool to promote the transparency of information produced by the government and enable social control of basic education in São Paulo by civil society. The Open Data program is in line with the Access to Information Law (Law No. 12,527, of November 18, 2011), sanctioned by President Dilma Rousseff, which regulates the constitutional right of citizens to access public information.

Seduc-SP's BI Total School Panel facilitates the collection of various educational data, such as academic performance, school attendance, student demographic information, and school financial data. As a *Business Intelligence* (BI) tool, the platform allows large amounts of information to be processed using data analysis techniques to identify trends, patterns, and relevant insights supporting educational decision-making. BI offers advanced data visualization capabilities, including charts, *dashboards*, and interactive reports, which allow users new ways of understanding data and extracting information. This aspect of BI aligns with the idea, widely disseminated at Seduc-SP, of evidence-based management, which has been consolidated as a mantra in training teachers and managers of the Secretariat. It is also important to note that the platform can be used to monitor progress against established educational goals, assess the impact of educational policies and programs, and track the performance of schools over time.

The BI Panel integrates 13 learning support platforms, including Aluno Presente, Prova Paulista, Redação Paulista, Desafio SP, Prepara SP, Khan Academy, Mega Escola, Alura, and Matific. According to Seduc-SP, it provides real-time data for immediate decision-making and enables planning to improve learning and student attendance. In this sense, the platform expands the possibilities of control and monitoring and, as its name suggests, seeks to configure itself as a "Total" School Panel.

Thus, we consider that it is in line with the exaggeration of the traits of the bureaucracy that Licínio Lima called radicalized, expanded bureaucracy or hyper-bureaucracy (Lima, 2012). According to the author, these forms of control are driven and strengthened by the new information and communication technologies, which emerge as a new source of centralized, electronic and apparently diffuse and potent control, always present everywhere and at every moment , totalized by nature and sometimes almost totalitarian.

IMPLICATIONS OF PLATFORMIZATION IN THE SÃO PAULO STATE NETWORK

Data from doctoral research (Maldonado, 2024) indicate a decrease in face-to-face activities, such as meetings between principals and visits by teaching supervision and other professionals, to the detriment of technology-mediated management. Given the connectivity and speed of processing of TDICs, there was an increase in the pace, quantity, and intensity of management work, due to the demand to fill out numerous forms, reports, and various other requests on Seduc-SP's digital platforms. Thus, the computerization of the school has produced the reverse of what was imagined, by creating a series of new processes for the organization and production of information.

In addition to the digitalization of relationships and the deepening of the use of technologies in the daily management of the school,

> [...] for the first time, classes, technical guidance, teacher training processes, among other topics, simultaneously and instantly reach a vast group of students, coordinators, principals, and the school community. Previously, the guidelines were also issued centrally, and when they arrived at the schools, they were interpreted, contextualized, and communicated by the school's management teams. But, currently, online training actions driven by the need for social distancing in the face of the Covid-19 health crisis, such as classes, shared meeting agendas, technical guidelines, among others, reach schools directly without any type of resignification, transmitted in real time to the entire network via the Media Center and other digital devices. A significant change is underway, which materializes in the speed, simultaneity, form of reception of messages, and control of their emission (Maldonado, 2024, p. 128).

The field of education has incorporated the characteristics of platformization or the uberization of work. We rely on Antunes (2020), who developed a set of guidelines on the performance of platforms, and many of their characteristics apply, with due conceptual care and contextualization, to school management. In this sense, platformization promotes the delimitation of what should be done; with a deadline for the execution of tasks and services, and the determination of who can act on the platform to perform them. The platforms also determine how communication between workers and their management should occur, with a focus on them being assiduous and not denying demanded services, in addition to the strength they exert so that workers remain longer at the disposal of the central body or management (Antunes, 2020, p. 69). Also, according to the author, although the discourse on flexibility, freedom, and self-management of work using Digital Information and Communication Technologies (DICTs) is present, digital platforms control the entire process. This means that, contrary to what has been propagated, work has rarely been so rigidly regulated, exploited, and with such long hours.

In the interviews collected, the increase in the workload of principals was evident, in addition to revealing some of the characteristics of the changes that the Digital School Secretariat imposed on the school routine. Although SED centralizes and digitizes a series of school administrative processes, in addition to other technological resources such as mail and electronic signatures of documents and digital processes mediated by the Paperless Program, this occured because the current school management is more requested about the production of data such as reports, forms and questionnaires by Seduc-SP. This ends up enlarging the work time and interfering with other management functions, including the pedagogical one.

In the context of managerial management, there was an increase in demands related to the implementation of educational policies in the school, whose monitoring and control have been facilitated by the DICTs; on the other hand, the spaces for critical analysis of educational policies and their resignification, as usually occurs in the implementation process, are increasingly limited and suffocated by the constant demands of the Education Boards (DE) and by the speed with which everything must be carried out. To one of the directors interviewed

> The director [today] is very busy, the work is more bureaucratized, I think, much more. [...] There is so much to fill that today, the pedagogy takes only thirty percent, unfortunately. I would say that seventy percent [of the principal's time at the school] is with the bureaucracy. And look, you just have to see that I try [and tell myself], today I see everything, but suddenly there are more things to fill (D4) (Maldonado, 2024, p. 131).

Another interviewee stated that when she gets home, she needs to turn off her cell phone to finish her workday. The demand for work imposed by Seduc-SP is thus enhanced by technology, which, in addition to making the workday strenuous due to the intensity of the work, tends to extend beyond the period in which the principal is in school. In this way, the TDICs favor Seduc-SP to mobilize the school administration beyond the time determined by the work regime of 40 hours per week and in different places of the school.

> Because [the workday] starts when the school opens, at 7 am, in my case, to 11 pm, when it closes. As much as you have a schedule [...], we will already go to work if we are called. So, the work doesn't start when you arrive at the unit; it begins when you open your eyes and turn on your cell phone, doesn't it? You are already seeing a message from the school, you are already answering things from the school, you have already started working (D1) (Maldonado, 2024, p. 129).

It seems contradictory that technology, instead of simplifying the school administrative processes, contributes to the bureaucratic overload of school management, as mentioned by the interviewee. However, this interpretation aligns with the literature on platforms and evidence-based management, which requires constant monitoring and continuous data generation to feed the algorithms that guide school administration. This is because those who control the use of technology aim to increase productivity, that is, they put it in the service of carrying out more work in shorter intervals. Thus, the ease and speed of solving a management issue by *email* or WhatsApp, avoiding displacements and processes, does not translate into more time for the school management to dedicate to directly pedagogical matters, or even for it not to have to work outside the contractually pre-established hours. On the contrary, it results in more work during and outside school hours.

This scenario highlights an inherent contradiction in digitalization policies, as they have been implemented: while their defenders and controllers promise to simplify bureaucratic processes and reduce the time dedicated to administrative tasks, they end up, in practice, expanding demands and intensifying pressures on the management team. The centralization of information through the SED and the intensification of digital bureaucratization result in an overload of work and a reconfiguration of the daily priorities of the school administration. The excessive focus on producing and feeding data shifts attention from central attributions, such as pedagogical monitoring, articulation of the teaching team, and dialogue with the school community. This can be understood as part of a managerial conception, which privileges the realization of what is determined by the formulators of educational policies, without space or time for dissent.

Still, regarding DICTs, the principals interviewed highlighted that the vast volume of data produced, especially in the SED, is underused for reviewing practices and supporting decision-making in the school environment. This is because, most of the time, school managers, and here we also refer to pedagogical coordination, are busy with bureaucratic and organizational tasks and are responsible for using platforms by students and teachers.

This supposed underuse of data, combined with the intense bureaucratization of daily school life, in which schools have limitations to make autonomous, critical and appropriate use of the information collected, may justify the outsourcing of information management and, consequently, of school management, which already seems to us to be underway through digital platforms that perform automated analysis of the large volume of information collected, such as BI, or even through the hiring of agents external to the school unit, such as companies or private consultancies, contributing to the process of privatization of São Paulo state education.

In addition, the increase in digital demands is not accompanied, in many cases, by adequate training and continuous technical support, which imposes additional difficulties, especially in schools with deficient technological infrastructure. This situation reveals the need to critically reflect on the impacts of digitalization on school management, considering both the gains in efficiency and the challenges imposed on the work of principals regarding the quality and balance of their functions.

DISCUSSION AND CONCLUSIONS

Before we move on to relevant conclusions from this study, it is essential to recognize that some highlighted conclusions should be interpreted as trends and require validation through future research to confirm the arguments presented.

DICTs as power devices: We understand that adopting digital platforms to regulate school management is linked to the new work dynamics in contemporary capitalism. This has modified the relationship between time and space, resulting in the centralization of policies through the fragmentation and standardization of activities. This centralization became evident with the intervention of Seduc-SP in the schedules of the Collective Pedagogical Work Activities (ATPC) and other moments of teacher training.

Technologies have the potential to contribute to updating, innovating, and improving the delivery of public services, with emphasis on democratic and social values, as well as enhancing forms of governance. Even though the literature on the issue indicates that the advance in the use of computers, means of communication and, especially, of the internet infrastructure suggest new modalities of interaction between the state and society, increasingly based on DICTs, and has the potential to establish a new dynamic in the relationship between government and citizens — enabling a more effective public administration, participatory and transparent (Guimarães; Medeiros, 2005) —, in the specific context of the use of DICTs in the São Paulo state network, we understand that they have not guaranteed more time to the management teams for didactic-pedagogical activities and, as tools of electronic governance, have not favored a process of democratic participation of the school community.

In this sense, we can say that a project for the digital reconfiguration of school management is underway, which enables the school board to become the intermediate manager of the *digital accountability* exercised by the platforms. Converted into managers, the principals now have prescribed and guided attributions to link and limit the pedagogy developed in the school to practices, mainly oriented to obtain results, and their resulting forms of control of the teaching work.

Finally, it is worth noting that the reflections on the process of platformization in the São Paulo state network and its implications for school management and education in general are not associated with a Luddite position or a superficial refusal of technological development. But to take a critical position on the purpose and use of technology, determined by those who control it. Thus, the research suggests that the way digital platformization has entered the school space does not correspond to a perspective of democratization of school relations, neither makes itself present as a technological support that contributes to better conditions for the realization of the educational process and teaching work. On the contrary, it has been configured as a *digital accountability*.

In order to insert technology at the service of school management and educational processes, its control must be democratized, its use and format must be discussed with those directly involved, mainly the school community, something quite distant from the intention of Seduc-SP's administrations since the beginning of its adoption, an isan issue which has worsened in the administrations of Secretaries Rossieli Soares (2019-2022) and Renato Feder (2023-).

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