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Instrumental Rationality of Digital Platforms in Practices of School Principals

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Abstract

The study presented here aimed to understand and analyse the perceptions of school principals in Portugal regarding the effects of digital platforms on their professional daily lives. Data collection was carried out through a Focus Group with 31 school clusters principals from public education in the Northern Region of mainland Portugal. A qualitative research approach and a critical perspective were adopted in the data analysis, based on the content analysis of the produced discourses. The study's results illustrate the effects of the digitalisation processes of school management on the professional and personal lives of school principals, particularly: increased workload and bureaucracy, emotional and psychological distress, and the constant effort required for adaptation and training.

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Introduction

It is undeniable that digital technologies and the resultant digitalisation have become an integral part of our everyday lives to such an extent that society increasingly feels its effects (McAfee & Brynjolfsson, 2017). This lends credence to the notion of a phenomenon of popularisation (Araújo & Vilaça, 2016) and naturalisation which is greatly indebted to computers that are no longer exclusively an internet space. The street, the restaurant, the shopping and workplace, among other spaces, make us aware of a digital realm that reconfigures new ways of being, doing, knowing, and existing in this contemporary society we inhabit (Giddens, 2012; Lévy, 2010). It is not strange, therefore, that we are all compelled to be part of a new reality as a result of the intensity of its advance and the implications that arise from its use, whether beneficial or not. This evident social transformation, which occurs in and is transversal to all sectors or dimensions, does not leave education unscathed. In recent decades, digitalisation has emerged at the top of the political agenda as an essential dimension for improving learning and education (From & Pettersson, 2022; Johansson & Seiser, 2024). The present allows us to recognise the digital contagion suffered by schools, whether in terms of their functioning through new modes of governance, or at the level of administration, management, and communication (Folgado & Carvalho, 2024).

As examples, it is worth highlighting that in Portugal, among the many other digital platforms that schools must access daily, the Ministry of Education is implementing Escola 360, an integrated student-management system developed to consolidate school-management processes from pre-school to upper secondary and to provide authorised users with real-time information. E-360 forms part of a

broader modernisation agenda, supported by national recovery funds, aimed at streamlining administrative workflows and improving data availability for school leadership teams.

In England, official guidance recognises that choosing an appropriate school Management Information System (MIS) can materially affect staff workload and pupil outcomes, reflecting both the maturity of this market and the role of MIS in day-to-day school leadership.

In Spain (Andalusia), the Séneca platform functions as the administrative backbone of the entire system, being routinely used by leadership teams to manage pedagogical, administrative and communication tasks.

In Turkey, empirical studies document school principals' reliance on national platforms (e-Okul/MEBBIS) to support data-based school management and decision-making (Öz & Arastaman, 2022).

In Portugal, where the present study is situated, it is important to highlight that school principals hold dual responsibilities, combining pedagogical leadership with administrative management within a highly centralised education system. Their role requires them to implement national education policies while simultaneously coordinating teaching, learning, and institutional operations at the local level. This dual function positions them at the intersection of policy and practice, and makes them key agents in mediating between centralised directives and the concrete realities of school communities.

In this context, school leaders bear the responsibility of deciding on the course of action that best addresses the challenges of digital transformation and of leading their organisations through policy reforms aimed at innovation, demonstrating good practices in the integration of technology within educational settings (Avidov-Ungar

et al., 2020; Folgado & Carvalho, 2024; Sterrett & Richardson, 2019). It is within this framework that the present study is situated, particularly in recognising the significant number of digital platforms currently in use in schools and the obligation of school leaders to employ them as management tools, thereby shaping new ways of being and acting in educational leadership. Given that the association often made between digital technologies and efficiency does not always lead to success—frequently resulting instead in the intensification of bureaucratic work—this study seeks to provide data that may inform changes in their use with implications for educational policy.

Thus, our aim is to uncover the impacts of digital platforms on the professional daily lives of school leaders, while also identifying the challenges they face in the context of increasing digitalisation. Guided by the aim of the study, this article is based on two research questions:

> RQ1: How do school principals in Portugal perceive the impact of digital platforms on their daily professional practices?
>
> RQ2: How do school principals in Portugal define the factors that influence the impact of digital platforms on their daily professional practices?

To this end, the main objective was to examine and analyse school leaders' perceptions of the impact of digital platforms on their professional daily practices. Data collection was carried out through focus group sessions with 31 school clusters principals (AE) from public education belonging to the Administrative Services Directorate of the Northern Region of mainland Portugal (Ministry of Education). In this article, we adopt a critical perspective to examine the processes of digital colonisation in education and present data that illustrate the

initial effects of these processes on the professional lives of school principals. Our focus is on exploring how the implementation of digitalisation is affecting administrative routines and the various actions of these professionals.

Digitalisation in education: between metamorphosis and the hegemony of platform capitalism

The various institutions and organisations that constitute the social fabric, particularly educational organisations, create a situation that cannot be understood in isolation from digital technologies when considering their modes of governance, administration, and management. Digital technologies can both encapsulate the notion of a "digital metamorphosis" and a "digital revolution", as proposed by Beck (2017), which enhances "digital risk" through arbitrary data use and its conversion into a tool for a "new digital intelligentsia, a new transnational ruling class that uses digital cosmopolitisation as a power resource to reshape the world" (p. 187). As Jones (2015) mentions, we live in an era where the term "digital metamorphosis" not only reflects a technological revolution but also signals a substantial shift in social and educational structures – we live in a digital drift (Williamson & Hogan, 2020). This phenomenon highlights the dual role of digital technologies, which can serve both as tools of empowerment and as risks, influencing governance and administration in previously unimaginable ways.

Undoubtedly, the increased complexity, diversity, and expansion of digital technology, especially in the field of education, give rise to new challenges explained by our frequent use of these technologies, whether for didactic-pedagogical purposes or in administrative and management activities. However, alongside the benefits universally acknowledged – and indeed corroborated by the pandemic situation –

it is imperative that we question them "also as technologies of domination, control, and alienation; as means of competitive publicity or educational marketing; as instruments for the development of forms of digital accountability, among other functions" (Afonso, 2021, p. 4) – a consideration that compels us to reflect on the ideological dimension that digital education carries (Selwyn et al., 2016) in its relationship with digital technology.

If current times confront us with their almost inevitable presence, we must also consider the discourse produced at both national and transnational levels that present digital education as an engine of economic and social development. There is a demand for more digital skills so that the digital transition can be realised, supporting the notion that the Fourth Industrial Revolution is underway (Lima, 2021).

Modernising, dematerialising, and debureaucratising, thus ensuring greater efficiency and effectiveness (Carvalho & Loureiro, 2021; Catalão & Pires, 2020; Folgado & Carvalho, 2024; Lima, 2012), has become the new discourse of modernity. Therefore, we cease to be surprised by changes conducted at a perhaps overly accelerated level and naturalise its colonising presence at the cost of rhetoric that greatly extols its benefits, "suspending reference to problems regarding socially stratified access to such technological artefacts and their enjoyment, as well as to possible dystopian uses of digital power" (Lima, 2021, p.3), or even to the dehumanisation that decision-making will ultimately convey. Ultimately, this does not invalidate the recognition of the nearly limitless capabilities to store and exploit information swiftly, crediting the Olympian rationality that Simon (1989), in opposition to bounded rationality, associates with a genius that can only describe the capabilities of a superman. This genius elevates the prominence of digital platforms that acquire the epithet of

platform capitalism (Srnicek, 2018), which promotes platformised professionalisms – skills, knowledge, and behaviours become "platformised" (Clutterbuck, 2023).

Devices are disguised as neutral, due to the absence of ideology with which they are presented, when in fact they are transformed into powerful tools in the reconfiguration of action and relationships established by their users (Moos & Ford, 2020). In this regard, Van Dijck et al. (2018, p. 3) note that "Platforms are not neutral constructions nor are they value-free constructs; they contain specific norms and values inscribed in their architectures". While discourse on the values they promote, namely "privacy, security, accuracy, consumer protection, and the values of transparency, justice, equality, solidarity, and accountability" (Afonso, 2021, p. 6), is scant, the same cannot be said when their economic nature or social interference is concerned. Through this, political agendas diminish because they keep ethical issues absent that could be considered as democratic control over the reach of digital platforms, which in some cases lack transparency.

On this matter, it could be said that in the name of objectivity and precision, any axiological perspective is hindered, blocking the entry to any human particularity, a fact that contributes to deepening the divide between the decision-maker and the executor of that decision, transforming them into dichotomous elements that ultimately exclude any possibility of communication. That is, it always transforms the subject into another dehumanised entity. What appears factual is the paradoxical use that has been made of digital technologies when the focus is on democracy, as they both threaten and reinforce it.

In this context, various studies (Al-Fudail & Mellar, 2008; Fernández-Batanero et al., 2021; Jena, 2015; Joo et al., 2016; Tamir et al., 2020) assert

that technologies have transformed how individuals work, influencing functioning in all life domains. On one hand, they serve as mechanisms to improve educational contexts; on the other, they have been adopted as the principal and only basis for work and communicational interactions, where they have been responsible for significant changes in people's lives. These have not always been positive, as they disturb personal and interpersonal relationships and even affect health (Sá et al., 2023), especially emotional fatigue (Korunovska & Spiekermann, 2019), becoming a source of tension, stress, and anxiety among educational agents – technostress, which arises due to the dependence on technology, the constant use of technological tools, and the fear of lacking technology and necessary knowledge about it (Panahi, 2023).

This undeniable hegemony of the digital (Canclini, 2019), which appears to have no opposition due to the lack of critical and reflective questioning in the public space that could reveal the contradictory implications of its use, leaves us with the certainty of the need to address the issue of the installed power of platforms more thoroughly.

Platformisation in education: between bureaucratisation and centralisation of the educational system

It is an established fact that schools have been unable to immunise themselves against this trend of platformisation (Afonso, 2021); in certain cases, it has even exacerbated the issue, although the importance of private companies in this endeavour cannot be overlooked. Under the guise of the common good, an immeasurable amount of data that spans the entire educational universe is provided and processed in correspondence with the various educational actors involved but also with governance at its different levels. In terms of the educational system, the existence and availability of data provided by computer platforms, in itself, does not constitute a problem.

However, when these platforms begin to exercise control over peripheral actors, when they limit and constrain the type and nature of information to be recorded, barring space for critical dialogue and clearly nullifying the margins of autonomy of these actors, we face a circumstance of a common good that conspires against us. In the case of schools, this conspiracy might convert computer platforms into a requirement for participation, based on technical mediation, making obedience and submission their corollary, thus subverting the idea of democracy which, ultimately, may take on contours of de-citizenisation (Dussel & Cardona, 2021). This fact allows us to recognise that computer platforms promote new forms of (non-)participation, in this context, with highly hierarchical regulatory dynamics.

This scenario forces us to consider the issue of instrumental rationality expressed in the transformation of educational actors into passive subjects, who are not tasked with finding the justification for the values carried by the information they receive (Carvalho, 2009a). The actors, in terms of decision-making, are defined as "mere rule followers, manipulated and submissive to dominant power relations, finding themselves prevented from truly participating" (Carvalho, 2009b, p. 448), which corroborates the observation by Gorur and Dey (2021) that computer platforms do not shake nor weaken hierarchies but rather reinforce them. In this context, fragmentation becomes prominent as it disregards interactions between parts, giving way to the manifestation of mechanicism, losing the sense of why in favour of how. At the same time, a simplistic view of school organisation is credited, enhanced by the distance that forgets or minimises the concrete conditions of a given set of circumstances. It is the fragmentation of decision-making.

Consequently, standardisation gains prominence as tasks are performed according to clearly defined standards, which also facilitates the prompt evaluation of each participant, with consequences for the predictability of the behaviour of its members who are required to achieve the maximum efficiency possible. We would say, in this regard, that bureaucratic standardisation gains an even greater scope than that to which we have been accustomed by traditional bureaucratic processes, not only due to a higher degree of standardisation but also due to the rapid collection of information they facilitate, benefiting statistical processing and other control modalities. This is the reason that explains why the rationale inherent in computer platforms excludes the interference of the affective dimension without restrictions. It allows the eradication of any trace of error that could contaminate organisational action, legitimising impersonality in relationships and devaluing the human aspects of the organisation in favour of instrumental efficiency enhanced by the need to convert them into means or ways to pursue organisational objectives. This scenario does not exclude the existence of a hyper-bureaucratisation expressed in this "increased and radicalised bureaucracy" (Lima, 2012, p. 130) which has greatly benefited from the use of computer platforms. But it seems obvious that this colonisation of the school by computer platforms is not marginal to the strong centralisation to which the Portuguese educational system is subject and which uses them as a means to serve its dictates, without this implying greater transparency and accessibility. As Afonso (2021) reminds us, "the (centralised) reception of these data and their methodological and statistical processing are completely opaque processes, sporadically poured into partial technical reports, in most cases, intended to travel through internal and hierarchical institutional circuits, and rarely made available for public scrutiny" (p. 9).

Furthermore, it is the state itself that stipulates the rules that the platforms impose on their users, who assume them as a requirement from which they render accounts. Computer platforms associated with new public management, although envisioned as a promise of debureaucratisation, have consolidated the assumption of a school that subverts the pedagogical dimension to the administrative. According to Selwyn (2022), school leaders are compelled to continuously update their digital competencies, not with the aim of achieving genuine pedagogical improvement, but rather to meet systemic demands for modernity and innovation.

Method

This study, which aimed to understand and analyze the perceptions of school principals about the effects of digital platforms on their daily professional lives, adopted the qualitative methodology grounded in the paradigm interpretative, which is particularly suitable for exploring participants' lived experiences and socially constructed meanings (Bogdan & Biklen, 1994). A qualitative approach was chosen because it enables an in-depth exploration of the subjective perceptions and professional contexts of school principals—elements that are not readily quantifiable and require interpretative analysis. In this context and intentionally, Focus Groups were used as a data collection method, as they promote dynamic interaction between participants, stimulating the emergence of shared concerns and contrasting perspectives. The study analysed the accounts of 31 school principals of public school clusters, who participated in four Focus Groups (Table 1), selected through a convenience sampling method. The choice of participants was based on ease of access and contact with school principals affiliated with the Directorate of Administrative Services of the Northern Region of mainland Portugal, under the Portuguese

Ministry of Education – Inclusion and exclusion criteria: Inclusion required: (i) being a currently serving school principal (public school) within the target region; (ii) a minimum of five years' experience in school leadership/management (as principal or in equivalent school-level leadership roles); (iii) routine use of institutional digital management platforms in day-to-day work; and (iv) informed consent and availability to participate in the focus-group procedure. Exclusion applied to: (i) assistant/vice principals or other leadership roles not serving as head of school; (ii) principals or leaders with less than five years' leadership/management experience; (iii) principals without regular exposure to the platforms under study; (iv) individuals on leave at the time of data collection; and (v) potential conflicts of interest (e.g., direct involvement in the design, provision, or commercial management of the platforms).

Data collection was carried out in 2023, with sessions recorded on video and audio with the permission of participants, following the ethical rules of informed consent, anonymity and the possibility of withdrawal without penalty. After transcription and anonymisation of the data through coding (Table 1), the video and audio materials were destroyed. The speeches from the Focus Groups were transcribed and subjected to a content analysis procedure, following the model of organisation and analysis by semantic categorisation (Bardin, 2008). That is, the speeches were organised into semantic sense cores that make up communication and whose presence, or frequency of manifestation, gave rise to emerging categories of analysis (Bardin, 2008). Thus, within the analysis dimension of the study – "effects of digitalisation/digital platforms on the daily work of school principals" – the content analysis identified three emerging categories of analysis: i) workload and increased bureaucracy; ii) emotional and

psychological discomfort; and iii) effort of adaptation and constant training (Table 2).

The validity and reliability of the analysis categories were ensured through the review of two content analysis experts, complemented by an iterative validation of the interpretations with the 31 school principals participating in the study. That is, after the initial categorisation of the data by the researchers and the subsequent review by the experts, it was sent back to the school principals. They validated the analyses and the meanings attributed, ensuring that the interpretations reflected their experiences and perspectives regarding the use of digital platforms in their daily lives as school managers.

Table 1. Study participants and data coding by Focus Group

Study participants	**Coding - Focus Group**
8 School principals	GF1
7 School principals	GF2
8 School principals	GF3
8 School principals	GF4

The analytical dimension outlined in Table 2 was informed by a set of initial open-ended questions introduced during the Focus Group sessions. These questions functioned as discursive triggers, facilitating the articulation of shared experiences among participants. The resulting discourses were subsequently analysed and structured into the emergent categories also presented in Table 2, allowing for a coherent organisation of the collective perspectives expressed. These questions were designed to explore the school principals' perceptions of the effects of digital platforms on their professional routines. Being open-ended, they were adapted and expanded throughout the

sessions in accordance with the flow of group dialogue. The main guiding questions were as follows:

- How do digital platforms influence your daily work as a school director?
- What challenges do you face in managing and responding to platform demands?
- In what ways do digital platforms affect your ability to carry out pedagogical leadership?

Table 2. Dimension under analysis and emerging categories

Dimension under analysis	Emerging Analysis Categories
Effects of digitalisation/digital platforms on the daily work of school principals	i) Workload and increased bureaucracy
	ii) Emotional and psychological discomfort
	iii) Effort of adaptation and constant training.

Presentation and Discussion of Data

The presentation and discussion of data follows the organization by categories in table 2.

Workload and increased bureaucracy

This category focuses on the discourse of school principals reflecting a widespread experience of workload and bureaucracy, based on the daily use of technological platforms. In this context, school principals express that they are constantly connected, resulting in a state of continuous and uninterrupted work. Regarding this, they mention:

We are faced with an undeniable situation: the workload due to the intensive use of technological platforms. We are constantly connected, which leads to a perpetual state of work, seemingly never-ending. A workload, a burden, which ideally should be the opposite, right? It should be a support to reduce this load... (FG1)

One aspect of the daily routine that has become dominant in management teams is email management. The volume of messages we receive and send is overwhelming. Often, I find myself navigating a sea of emails, losing precious time that could be devoted to more productive tasks. (FG4)

Indeed, managing emails has become an almost central component of our daily work. The amount of emails we receive and send is immense; it's truly madness... Often, yes, very often, I find myself lost in a sea of messages... I lose a lot of time in this process... (FG4)

What deeply concerns me is the need to manage multiple digital platforms. This situation has consumed a great part of my time as a director... The need to manage multiple platforms while simultaneously keeping up with the entire life of a school or cluster has been very complicated. The vast platforms have taken away the time for what I believe to be essential – being with and truly knowing our students, parents, and the community... (FG2)

The work of managing so many emails and platforms takes my focus away from central tasks of school management... (FG1)

The concern as a director is the challenge of maintaining strategic focus amidst the flood of information and requests from digital platforms. With so many operational and administrative tasks required by these tools, it is easy to lose sight of our work objectives as school principals. I have had a lot of trouble focusing on what really

> *matters: providing quality education to the entire educational community... and this is not only with management; teachers are constantly responding on platforms to address parents and students; everything is urgent, immediate. (FG3)*
>
> *We are constantly entering data into various central administrative systems – a task that has been consuming a lot of time for the entire management team. Although we recognise the importance of this data, we must also seek ways to optimise all this so as not to divert our main focus, which is our cluster. And the problem is that we are often entering the same data on different platforms and not receiving any benefit from these data; it's a waste of time, this is not how I will focus on improving the school, the problematic situations... (FG4)*

From these excerpts, it is evident that school principals highlight the significant challenge that email management poses in their daily work. The vast amount of electronic communications that need to be processed daily is seen as a source of distraction and time loss, detracting from other administrative dimensions. The same is valid for the constant demand to enter data on multiple platforms, making the task highly exhausting. The data that is repeated and the efficacy and real value of these procedures are questioned by school principals, as this mass data entry has not offered tangible benefits but instead contributes to management practices that are tormenting and distressing, taking time and space away from pedagogical reflection.

These experiences of school principals getting lost in a "sea of emails" illustrate the transformation of digital technologies into means of competitive advertising and educational marketing, where effective communication is overshadowed by an overwhelming amount of information (Afonso, 2021). This situation can be seen as an example of "digital risk" (Beck, 2017), where the excess of information and

digital communications diverts school principals' attention from the most significant educational tasks, particularly in dedicating time to essential matters about students, families, and the school community, transforming them into "platformed" professionals (Clutterbuck, 2023).

Associated with this scenario of managing multiple digital platforms, the redundancy in data entry reflects the idea of a "new digital intelligence" (Beck, 2017), where digital platforms constitute tools of a new bureaucracy. This scenario highlights the presence of hyper-bureaucratisation, where digital platforms, instead of debureaucratising, end up creating new forms of control and standardisation (Lima, 2012), distancing school principals from the central tasks of management, as expressed by the following testimonies:

> *It's an increase in bureaucracy, especially with the digitalisation of many processes; it has been a constant challenge. (FG1)*
>
> *Digitalisation has brought with it a new form of bureaucracy. Previously, we dealt with piles of paper; now, we face countless platforms. Although these platforms promise efficiency, we often find ourselves lost in a labyrinth of digital processes. I would say, school principals have turned into platform managers... (FG3)*
>
> *I find myself in a state of continuous, almost endless work. The technology, which should alleviate my workload, is increasing it at all times. We are always connected, and this leads to an endless cycle of tasks. Honestly, I think we need to rethink our relationship with technology so that it becomes a true support, not an additional burden to management. (FG4)*

These testimonies clearly show how digital technologies, under the disguise of promising efficiency and debureaucratisation of work, can transform the daily lives of schools into the opposite; while promising to alleviate administrative burdens, they increase bureaucracy and intensify work (Carvalho & Loureiro, 2021; Catalão & Pires, 2020; Folgado & Carvalho, 2024). In this context, school principals may assume the role of mere rule executors, with little capacity for active and effective participation in the course of their educational management (Carvalho, 2009b), thereby contributing to strengthening centralised command hierarchies (Gorur & Dey, 2021). This situation does little to dignify and reinforce the work of management teams in promoting contextualised educational improvements.

Emotional and psychological discomfort

In this category, we identify discourse that highlights the effects of platformisation on the emotional and psychological well-being of school principals, particularly engendering stress and anxiety. According to the school principals participating in this study, the constant use of platforms has caused unwanted outcomes:

> *Significant stress generated by the constant use of technology in our day-to-day management work is a growing concern. I always have emails to respond to; I am perpetually behind with so many emails. (FG2)*

> *It causes a lot of anxiety due to the need to always be online and available, which is very concerning. My ability to focus on essential aspects of the school is directly affected by the environment of responding to so many requests on platforms; I have to fill in data on more than 40 platforms. (FG4)*

> *Always being always online and available creates anxiety... There is no longer a boundary between work and personal life... Indeed, the difficulty of disconnecting from technological platforms creates anxiety. (FG4)*

In this context, they report living in situations of intense pressure and being worn down. On this matter, they affirm:

> *The endless stream of emails and the need to be always up to date with the latest digital information create a very large burden. I often feel delayed and under pressure to respond to everything in a timely manner. (FG1)*

> *The avalanche of emails and the constant pressure to respond quickly are exhausting. (FG3)*

The school principals further emphasise that this situation of constant work on digital platforms and the obligation to always be online has blurred the boundaries between professional life and personal time and they consider this situation as an invasion that has led to feelings of unprofessionalism. In this sense, they state:

> *[There is] constant pressure... I am daily bombarded with requests for quick responses through digital platforms. I am overwhelmed, and the Ministry of Education itself sends us emails on a Friday or even at the weekend and asks for a response within 24 hours. It's a lack of respect and boundless invasion. (FG1)*

> *The boundary between work and personal life has become increasingly blurred. This constant connection not only affects our well-being but also our effectiveness as educational leaders. (FG1)*

> *A feeling of professional failure, often exaggerated by the pressure to respond to so many platform requests... (FG3)*

> *This is a challenge... the school culture is indeed being invaded by so much digitalisation, but everything has to be in good measure; however, what is happening is dreadful. The ministry is mainly responsible for all this, insisting on conducting exams digitally, even knowing that many schools are not equipped, but the stubbornness of the minister of education is somewhat surreal. (FG4)*

These testimonials clearly illustrate the tension that digital platforms have cause in the everyday professional and personal lives of school principals by causing situations of emotional and psychological discomfort. It can thus be observed that feelings of professional failure are emerging, expressed in the statement of "always being behind", as well as the constant pressure to respond immediately to the dictates of digital platforms, generating a high level of stress and anxiety. For these school principals, school culture is indeed being reconfigured by the invasion/colonisation of unchecked digitalisation, and in this regard, they present direct criticisms of the Ministry of Education, which has imposed digital policies without considering the limitations of the schools; educational agents are becoming passive subjects in clear obedience to the rules, subdued and subjugated to the dominant power dynamics (Carvalho, 2009b). In this context, there arises a perception of disrespect and limitless invasion by the ministry, evidenced in the insistence on conducting exams digitally and sending communications that require quick responses, even on rest days and hours, leading to de-citizenisation (Dussel & Cardona, 2021) in the school organisation and unhealthy daily lives, based on permanent tension, stress, and anxiety (Fernández-Batanero et al., 2021).

This scenario echoes what has been described in the literature as technological emotional fatigue—a phenomenon in which the permanent connectivity and constant flow of digital demands generate

sustained psychological exhaustion (Korunovska & Spiekermann, 2019). As digital platforms become embedded into the daily governance of schools, they impose a form of temporal colonisation (Gregg, 2018), in which school principals are expected to be permanently available, eroding the boundaries of personal space and time.

What emerges is a culture of digital presenteeism (Jandrić et al, 2023), whereby school leaders feel compelled to be visible and responsive at all times in digital environments, not necessarily to enhance performance, but to conform to institutional expectations of efficiency and accountability. This phenomenon contributes to emotional depletion, a sense of professional inadequacy, and ultimately, burnout.

Thus, the school principals' testimonies may reflect the erosion of "emotional professionalism" (Hargreaves, 1998), where the relational and human dimensions of leadership are sidelined by the mechanistic demands of digital systems. The emotional costs of platformisation—such as guilt, anxiety, and the feeling of being constantly behind—are symptomatic of a deeper dissonance between the logic of digital optimisation and the lived experience of leading a school community.

Importantly, this emotional and psychological strain is not merely an individual issue, but a structural one, rooted in the design and implementation of digital governance systems that fail to account for the emotional labour of educational leadership (Leithwood et al., 2020). As such, addressing this discomfort requires more than technical solutions—it demands a rethinking of how digital tools are introduced, regulated, and supported in schools, with attention to the well-being, autonomy, and dignity of school leaders.

Effort of adaptation and constant training

This category encompasses the concerns and challenges faced by school principals related to the constant need to adapt to an increasing number of digital platforms. According to these concerns and challenges, the school principals state:

> *Every day there is a new platform, resulting in a waste of time as we figure out how to navigate the unknown. Yes, it truly is like navigating the unknown, and often it's a journey with little success. (...) It forces us to spend more time and seek help. (FG2)*

> *We are almost put into constant training on platforms of all kinds, a madness (...) A very present obsolescence with 40 or more platforms to manage – how can I be prepared? It's madness, utter madness. (FG3)*

> *A need for permanent adaptation. Whenever a new platform appears or a new information request arises, it forces us to dedicate time to seek help and technical guidance. (FG4)*

> *Sometimes, it seems we spend more time learning about these tools than actually applying them to benefit the school. (...) The time we spend figuring out how some platforms work could be better employed on more important tasks. (FG1)*

The rapid obsolescence of technical knowledge due to the incessant emergence of new platforms (Panahi, 2023) results in a continuous feeling of being outdated and overloaded, which leads to significant difficulties in school management, highlighting the fallacy of the efficiency that platforms always seem to purport. Indeed, the time spent on the autonomous training process that allows school principals to familiarise themselves with the new platform does not benefit the

pedagogical dimension of the school but rather subordinates it. These school principals acknowledge that the time dedicated to learning how to use the platforms often exceeds the time available for more central educational tasks.

In this regard, they emphasise the need to make use of their own time that allows them to update their digital skills at the expense of help and technical guidance to be able to use the respective new platform. This situation constrains them in their work by taking away time and focus from dedicating themselves to other dimensions of school management.

This reality may also demonstrate that the acceleration of technological innovation in education often outpaces the ability of institutions—and their leaders—to adapt meaningfully. As Selwyn (2022) argues, the pressure to keep up with technological change often results in performative adaptation, where school leaders are forced to engage in continuous digital upskilling not necessarily for pedagogical benefit, but to comply with systemic expectations of modernity and innovation. In this sense, digital platforms act less as tools for pedagogical transformation and more as instruments of institutional conformity.

Moreover, the issue of "digital drift" (Williamson & Hogan, 2020) becomes evident in these accounts—where the purpose and pedagogical rationale behind the introduction of each new digital tool becomes increasingly unclear to users. School leaders find themselves reacting to changes rather than proactively shaping them, leading to a sense of disconnection between technological requirements and educational priorities.

In summary, the categories emerging from this study are grounded in perceptions of school principals who assign digital platforms a predominantly negative role in their everyday professional lives. Such perceptions can be explained by the unfavourable circumstances these principals currently face, in which three inter-related factors, identified in their discourse, help to clarify this judgement: (i) the proliferation and overlap of platforms, which forces data to be duplicated across non-integrated systems; (ii) design and usability shortcomings, evident in unintuitive interfaces, frequent updates and poor optimisation; and (iii) a top-down implementation focused on compliance with standards and indicators, leaving little room for pedagogical priorities or in-depth training. The combination of these factors contextualises the workload, emotional strain and continual need for adaptation described in the preceding sections. It should be noted, however, that this context may, at least for the time being, obscure potentially beneficial dimensions that digital platforms can also offer to school management—as demonstrated by other studies (e.g. Akram & Khan, 2020; Shah, 2014).

Conclusion

Considering the objective of this study – to understand and analyse the perceptions of school principals about the effects of digital platforms on their professional daily lives – the data highlight the multifaceted challenges faced by school principals in an educational environment which is increasingly colonised by technological/digital platforms. In line with previous studies (Al-Fudail & Mellar, 2008; Fernández-Batanero et al., 2021; Joo et al., 2016), the findings show that, rather than simplifying work processes, digital platforms are often experienced by school principals as sources of complexity, stress, and loss of autonomy. Participants described daily routines dominated by

excessive email handling, repeated data input across incompatible platforms, and a proliferation of technological demands that disrupt their pedagogical focus and intensify administrative obligations. In this regard, the findings confirm the presence of what Lima (2012) designates as "hyper-bureaucratisation", now enhanced and expanded through digital means, thereby reinforcing the tension between managerial performance and the educational mission.

Moreover, this study reveals how emotional and psychological strain has become embedded in the digitalised experience of school leadership. Participants reported feelings of anxiety, frustration, and a continuous sense of being professionally inadequate, a result of the expectation to remain permanently connected and responsive. These findings are aligned with the concept of "technostress" (Panahi, 2023) and with idea of "temporal colonisation" (Gregg, 2018), where personal and professional boundaries are increasingly eroded by the logic of constant digital availability. Rather than serving as tools to support and improve leadership, platforms are perceived as mechanisms of control and standardisation, deeply affecting the well-being and identity of school leaders.

The requirement for constant adaptation and training further reinforces this precarious relationship with technology. As Selwyn (2022) suggests, school leaders are often drawn into cycles of "performative adaptation", complying with digital innovation without questioning its pedagogical justification or organisational coherence. School principals in this study expressed the exhausting need to keep up with new tools, frequently without proper institutional support or alignment with the core educational purposes of the school. What emerges is a professional context shaped by a culture of reactive management, where educational leaders are less

involved in shaping digital transformation and more engaged in surviving it.

Additionally, these results highlight a significant gap between the ambitions of digital policy—often framed around ideals of innovation, transparency, and efficiency—and the lived experiences of those responsible for its implementation. School principals criticised the Ministry of Education for issuing requirements and deadlines with no regard for school conditions, and for promoting digital exams and tasks even when basic technological infrastructure was insufficient. This criticism meets the concerns of authors such as Carvalho (2009b) and Dussel & Cardona (2021), who warn about the risks of platform-based governance reinforcing hierarchical dynamics and diminishing democratic participation in school life. Indeed, what is evident is a form of digital colonisation of school management that marginalises human, relational, and ethical aspects of leadership.

In this context, it becomes urgent to rethink the role of digital platforms in education, not only in terms of their technical functionality but also their organisational, emotional, and ethical consequences. Rather than perpetuating a logic of compliance and control, school digitalisation strategies must be grounded in respect for the autonomy, expertise, and well-being of educational leaders. Supporting school principals in their digital responsibilities cannot mean merely training them to adapt but rather involving them in the design of more humane, supportive, and pedagogically meaningful systems.

Ultimately, this study contributes to a more critical and nuanced understanding of digitalisation in school leadership, challenging the prevailing discourse of efficiency and proposing a vision of educational management that reclaims time, care, and pedagogical purpose in the digital age.

Despite the depth and relevance of these findings, it is important to acknowledge the limitations of the study that should inform the interpretation and transferability of its findings.

Limitations

Here are some of the limitations of this study to take into account for future research:

i) the evidence derives from a specific national context and a small, information-rich sample of school principals, which constrains generalisability;

ii) ii) the data were gathered through a single focus-group format, where social-desirability dynamics and dominance effects may have shaped what was voiced;

iii) the analysis relied on principals' self-reports rather than on triangulation with usage logs, documents, or observational data; consequently, perceived burdens could not be contrasted with time-on-task or workflow analytics;

iv) the study offers a cross-sectional snapshot; platform ecosystems evolve rapidly, so perceptions may shift with new versions, integrations or policies;

v) the sampling frame did not purposively target "positive-deviance" cases known for successful platform adoption; as such, predominantly negative perceptions in this corpus may reflect both local implementation conditions and the absence of contrasting success cases.

Taken together, these limitations underline that our results should be read as a contextualised account of principals' experiences rather than as claims of universal effect.

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