

The Effects Resulting from Using WhatsApp in the Routines of Education Workers

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Abstract

This article aims to explore the impacts of power dynamics arising from the use of the WhatsApp instant messaging application on the work routines of civil servants within a public educational institution. Utilizing the Foucauldian genealogy of power as a theoretical framework, we endeavor to conduct a critical historical analysis of the mechanics behind socially constituted power relations. Employing a qualitative case study approach, we juxtapose the analytics of power (drawing categories from the Foucauldian genealogy) with the investigative model of technological paradoxes, focusing on ‘Control vs. Chaos’ and ‘Autonomy vs. Addiction’, against data collected from interviews to uncover the power effects within this virtual space. Key findings include the observation that managers leverage a ‘system of differentiations’ to categorize and control subordinates through WhatsApp in a sophisticated and efficient manner. Moreover, the supposed enhancement of productivity through hyperconnectivity leads to compulsive smartphone use among employees, a phenomenon we interpret, following Foucault, as an institutionalized process of worker subjugation. Nonetheless, practices of resistance emerge, contesting these subjugation processes that affect the subject-workers. The institutional ‘battle’ for increased autonomy and healthier work routines emerges as one of the most potent forms of resistance against the overreach of power effects associated with WhatsApp use in the examined work contexts.

Keywords: genealogy of power, power effects, technological paradoxes, WhatsApp

1. Introduction

With a recognized impact on both the corporate sector and public educational institutions, WhatsApp has emerged as an application utilized not only for managing work routines but also for the development of pedagogical activities. This usage spans a range of education professionals, including teachers and technical staff.

According to Loureiro and Lopes (2015), information technologies—and all the computing resources that comprise them—are integral to a strategy for steering behaviors in the school environment. By shaping the behaviors of subjects in the use of electronic media (students, teachers, technical staff), they create conditions whereby other forms of conduct can be steered.

Theoretically discussing the effects of the technological paradoxes of ‘Control vs. Chaos’ and ‘Autonomy vs. Addiction’ arising from the use of WhatsApp, this article utilizes the perspective of Michel Foucault (1926–1984) and his genealogical studies on power relations. Predominant bibliographical references include writings by Foucault extracted from courses given at the Collège de France and from the work *Dits et Ecrits*: ‘The Subject and Power’ (1995), ‘The Abnormals’ (1975), and ‘The Ethics of Self-Care as a Practice of Freedom—Dits et Ecrits’ (2004). The following categories of power analysis were extracted from these texts: ‘The Type of Objectives’ (objectives pursued to maintain the privileges of those who act on the performance of others); ‘The System of Differentiations’ (differences that allow us to act on the actions of others); ‘The Instrumental Modalities’ (mechanisms used to maintain privileges and exercise power); ‘Forms of Institutionalization’ (systems/forms through which power relations are established); ‘The Degrees of Rationalization’ (calculation of costs and efficiency in the exercise of power); ‘Steering of Conduct’ (the way of conducting oneself and others); ‘Positivity of Power’ (the effects that the exercise of power produces); ‘Power-Resistance Relationship’ (strategies of resistance to power relations); and ‘Freedom Practices’ (practical actions for a less directed life).

This study was also underpinned by an investigative model of the paradoxes of mobile technologies and users’

dilemmas, which were presented by Mick and Fournier (1998), Lang and Jarvenpaa (2005), and Mazmanian, Orlikowski, and Yates (2005), and were systematized by Mendieta, Martens and Belfort (2014). Lang and Jarvenpaa (2005) define mobile technologies as portable IT artifacts that encompass hardware, software, and communication in an integrated manner, bringing together hardware (the device), software (applications like WhatsApp), and communication (network services) “because they are so intertwined that it makes no sense to separate the device, interface, and applications when studying how mobile services create value for users” (Lang & Jarvenpaa, 2005, p. 6).

The following oppositions constitute the model of technological paradoxes: ‘Control vs. Chaos’, ‘Freedom vs. Enslavement’, ‘New vs. Obsolete’, ‘Competence vs. Incompetence’, ‘Efficiency vs. Inefficiency’, ‘Satisfaction vs. Creation of needs’, ‘Integration vs. Isolation’, ‘Engagement vs. Disengagement’, ‘Independence vs. Dependence’, ‘Planning vs. Improvisation’, ‘Public vs. Private’, ‘Illusion vs. Disillusionment’, ‘Continuity vs. Asynchronicity’, and ‘Autonomy vs. Addiction’. The dilemmas of ‘Control and vs. Chaos’ and ‘Autonomy vs. Addiction’ are listed here for discussion in light of the genealogical categories of power presented in the aforementioned Foucauldian texts.

The decision to specifically discuss these two dilemmas is associated with their frequent occurrence in the statements of the interviewees and their direct influence on the subjects’ lives, including impacts on physical and mental health, as well as on professional and family relationships. Indeed, these impacts may have become more apparent at a time when telework is gaining traction due to the global COVID-19 pandemic.

Hence, a literature review, encompassing state-of-the-art papers, was conducted in two stages. In the first stage, the chosen keywords and Boolean operators were: ‘WhatsApp’ and/or ‘instant messaging applications’ or ‘instant messaging’ and/or ‘smartphone’ or ‘instant communication’. The same process was repeated in the second stage, with searches in the same databases to maintain consistency in the procedure. However, the keywords and Boolean operators were modified to: ‘Foucault’ and ‘power’ and ‘work’ and ‘technology’.

This strategy was adopted upon noticing a temporal gap between the scientific findings concerning the paradoxes of mobile technologies and the effects of power from the Foucauldian perspective, thus establishing a correlation between the themes of ‘power’ and ‘technology’. It is important to emphasize that, although much of Foucault’s work on the analytics of power dates back to the 1970s, his ideas remain relevant in both professional and social contexts. This contributed to the selection of theoretical support.

Foucault’s ideas also guided a significant portion of the methodological procedures in the research. Drawing from the theoretical framework, a semi-structured questionnaire was developed, capable of identifying the power effects resulting from the use of WhatsApp in the work routines of civil servants in a public educational institution. This inference is justified by the hermeneutic nature of Foucault’s genealogical studies, which aim to provide a historical-critical inventory of socially constituted power relations (Foucault, 1979).

Building upon the above, this investigation aims to address the following question: What are the power effects associated with the technological paradoxes of ‘Control vs. Chaos’ and ‘Autonomy vs. Addiction’, resulting from the use of the WhatsApp instant messaging application in the work routines of civil servants in a public educational institution?

In summary, the main objective of the article was to analyze the electronic steering of behavior and its power effects (both subjection and resistance, as well as freedom), resulting from the use of the WhatsApp instant messaging application in the work routines of civil servants in a public educational institution. The specific objectives supporting the main goal were: to investigate the use of the WhatsApp application in the work routines of a group of educational workers using a semi-structured interview script; and to analyze the technological paradoxes identified as ‘Control vs. Chaos’ and ‘Autonomy vs. Addiction’, considering the categories extracted from the genealogy of power.

This article is structured into the following sections: introduction, theoretical framework (subdivided into: power relations beyond physical boundaries; the exercise of power in virtual space; and the related paradoxes of ‘control vs. Chaos’ and ‘Autonomy vs. Addiction’ concerning the use of WhatsApp in the workplace), methodology, results, and concluding remarks. It is noteworthy that the concluding remarks discuss the processes of subjects’ autonomy, which involve less control over technological devices of power and greater autonomy in the routines of educational workers.

2. Power Relations Beyond the Limits of Physical Space

While power was the focus of most of his studies, Michel Foucault primarily investigated individuals as the main object of his research. Despite being a key reference in the study of power relations, he did not aim to create a

universal theory of power to be generalized and applied indiscriminately in all situations. Instead, he developed an analytical approach to examine the specifics of power, seeking to understand how power operates among individuals rather than prescribing an idealized concept of power (Foucault, 1979, 1995).

According to Foucault, power can be defined by its relational nature, functioning as a game between social forces established at various levels. Power relations permeate the deepest layers of the formation of subjectivities, manifesting from seemingly simple relational interactions, such as those between a mother and child, to institutional structures in the workplace, among others (Cardoso, 2020). Indeed, it is crucial to conceive of power in terms of micropowers, observable across various contexts, from schools and families to factories, prisons, the military, companies, and beyond. Its potency lies in its ubiquity: power is diffused throughout society, emanating from all directions and at all times. Power is not an exclusive attribute of a particular group, social class, or the state; it does not exist external to relationships nor is it solely contained within the 'other.' Instead, it constitutes a dynamic relationship between forces that both imply and are implied (Townley, 1993; Huisman, 2001).

As a result, power relations possess a multi-vectorial direction, extending in various dimensions. This implies that, theoretically, everyone can both exercise and/or experience the effects of power, and akin to a network, they are all interconnected (Foucault, 1979), influencing and being influenced within the dynamics of social forces. However, power lacks essence; it is not inherently good or bad from a moral standpoint, existing neither as an invariant positive nor negative substance (Foucault, 2004). Indeed, one of its most notable characteristics in our society is its inherently changeable and 'productive' nature, as Foucault elucidates:

We must stop once and for all describing the effects of power in negative terms: it 'excludes', it 'represses', it 'censors', it 'abstracts', it 'masks', it 'disguises'. In fact, power produces reality; domains of objects and rituals of truth. The individual and the knowledge that can be obtained are its production (Foucault, 1987, p. 194).

In his genealogical works, Foucault introduced various forms of power (disciplinary power, biopower, biopolitics, the governmentality of liberalism, and self-government). In the book *'Surveiller et punir'* ('Discipline and Punish'), disciplinary power is depicted as the power wielded within institutions such as prisons, hospitals, the military, and schools through architectural mechanisms, particularly the panoptic surveillance system.

According to Eribon (1990, p. 211), "the panopticon has become a symbol of the 'eye of power', representing institutional control that sectoral struggles continually denounce". The panopticon was an architectural concept proposed in the 18th century by Bentham (2008), aimed at eliminating blind spots and subjecting individuals to constant surveillance. This concept is closely associated with principles of surveillance and self-surveillance, as discussed by Foucault (1987) and Rosa and Brito (2010), which exert a subtle influence on individuals, shaping their behaviors and bodies.

The panopticon is described by Foucault (1987, p. 191) as "an apparatus in which the techniques of seeing induce the effects of power, and in turn, the means of coercion render those upon whom they are applied clearly visible". Drawing from the concept of the panopticon, panopticism emerges as a general and rational principle of inspection and control. This principle perpetuates a state of power in which individuals internalize surveillance and begin to self-monitor (Foucault, 1979).

Power, surveillance, and control have been integral to everyday institutions since modern times. The 'novelty' in the current relationship with new technological instruments such as WhatsApp is that power can be exercised beyond the physical spaces of organizations and institutions. Consequently, surveillance and control have witnessed the emergence of numerous technological devices in recent years, significantly expanding the scope of power's influence. It is from this perspective that the present article examines the use of virtual control and surveillance tools like WhatsApp, which function as post-modern panopticons. Ultimately, 'everything' and 'everyone' can also be monitored in virtual environments, in 'virtual media': this embodies the contemporary panoptic logic (Divino, Siqueira, & Barreiro, 2018).

2.1 The Exercise of Power in Virtual Space

Foucault (1995) does not fail to recognize that, as a space of power, the means of communication enable subjects to act in different ways. Information technology and its 'machines', for example, not only make things known and people seen but also have effects by allowing individuals to communicate and carry out their activities more effectively—faster, more accurately, easier, on a much larger scale, etc. (Canto-Sperber, 2013).

It should be noted that computers and smartphones are devices that help exercise power over people by monitoring communications, activities, and productivity. Computing devices are everywhere, always present; as in the panopticon, they do not leave any part in the dark. Almost always discreet, the 'post-modern panopticons' work

permanently, largely in silence, through cameras, access monitoring systems to internet content, social networks, facial and digital recognition, barcodes, engagement algorithms, among others (Cardoso, 2020).

Despite the benefits widely advertised by Computer Science and IT, autonomous electronic devices present some dangers, whether they are passive, such as interference—where the subject ‘allows’ the machines to exert a certain level of interference in his life (for example, algorithms of social networks, which create social bubbles and select the content to be seen by the user)—or active, when, for example, piracy, sharing of false news, and the deliberate introduction of computer viruses occur (Cardoso, 2020).

For Canto-Sperber (2013), information technology also causes effects marked by a certain ambiguity in its results, such as: the transformation of the world of work and job instabilities; the emergence of new professions; the widening of the center-periphery abyss; the dehumanization of tasks by reducing people’s potential for ethical reflection, making them conditioned to information technology systems (IT); problems of social disintegration; and the progressive disappearance of the difference between public and private life, unnecessary interruptions at work, data overload, increased demand for quick answers, fake news, etc.

The aforementioned power effects allow us to conclude that society needs to critically discuss the urgencies and interests that are at stake in the use of communication technologies, which invade and indelibly mark the modes of human relationships in the most different spaces of interaction, such as the field of work.

2.2 The Paradox of ‘Control x Chaos’ and ‘Autonomy x Addiction’ Related to the Use of WhatsApp at Work

The definition of a paradox is usually related to contradiction, conflict, ambivalence, and opposition between two ideas. In this case, the paradoxes highlight the dilemmas faced by mobile technology users. For Mick and Fournier (1998, p. 24), the concept of a paradox “[...] has always been centered around the idea that opposite and polar conditions can exist simultaneously, or, at least, can be potentiated in the same thing”. Thus, according to Martins, De Oliveira, and Corso (2018, p. 332), “the technological paradox can be understood as contradictory qualities perceived by users, present in the same technology”.

It is observed that part of the literature reviewed uses the term ‘paradox’ to refer to the power effects of technology—Martins et al. (2018); Mendieta et al. (2014); Borges and Joia (2013); Mazmanian et al. (2005); Lang and Jarvenpaa (2005); and Mick and Fournier (1998). However, there are researchers who explore the theme of the effects of power in interactions in the virtual world without resorting to such a term: Bautista, Rosenthal, Lin, & Theng (2018); Nduhura and Prieler (2017); Beckett (2015), etc.

These authors list, respectively, the dilemmas of using technological tools (such as WhatsApp), such as information sharing and storage facilities on mobile devices and the dangers that this entails, including data theft and industrial espionage; the advantages and disadvantages of using social media in the workplace; and the impact of using smartphones and messaging applications on the organization of work routines.

Known for saving time and other resources, apps like WhatsApp can also, paradoxically, limit people’s lives when used in an uncritical, poorly reflective, and/or unethical manner (Felten, 2017). According to the investigative model of technological paradoxes, regarding the paradox of ‘Control vs. Chaos’—“technology can facilitate regulation or order, and technology can lead to agitation or disorder”, as proposed by Mick and Fournier (1998, p. 126). This paradox is illustrated by the statement from Borges and Joia (2013, p. 5): “The use of smartphones helps me organize and control my daily tasks. Using a smartphone makes me feel out of control in relation to tasks, and this causes a certain disorder in my daily life”.

Other studies expand on the concept of ‘Control vs. Chaos’, such as the one by Cooper and Lu (2019), which addresses the issue of excessive availability at work and how information technology tools contribute to it. The studies by Krynski, Goldfarb, and Maglio (2018) and Boswell, Olson-Buchanan, Butts, and Becker (2016) contemplate the electronic management of after-hours work and the phenomena of ‘never logoff’ or 24/7.

Also in this context, Park (2019) evaluates life exposed to technological control through self-perception and behaviors of users who are dependent on smartphones. Based on interviews with 70 users, the author observed impacts on users’ health and identified two types of subjects: dependents and addicts. Comparing the two groups, addicts are those who cannot maintain a job or have a healthy social life due to compulsive smartphone use. Dependents can be subdivided into at least two groups: functional dependents and existential dependents. The former is concerned with the instrumental dimension of the smartphone, such as searching for information and online news, while the latter relies on smartphones due to compulsive status checking and a continual obsession with virtual contact. They value the euphoria arising from the use of their smartphones and seek satisfaction in its use, and as a result, find no reason to change their behavior. On the other hand, functionally dependent respondents admitted that they rely on their devices too much and that they should reassess their habits. Finally, the study

surveyed individuals who experienced a real disconnection from mobile devices, providing rare analysis and insights into how people reflect on their addictive behaviors. As practical implications, this study suggests that policymakers and educators need to address smartphone addiction as a public health issue (Park, 2019).

On the other hand, Mazmanian et al. (2005) argue that mobile technology users enjoy greater autonomy and flexibility in communication and in carrying out their activities; however, this increased autonomy leads to a greater commitment to stay connected, which can result in addiction. The statement reported by Borges and Joia (2013, p. 7) regarding 'Autonomy vs. Addiction' can better illustrate the issue: "The use of a smartphone gives me more autonomy and flexibility in my daily life. I often feel the urge to constantly check my smartphone and keep it up to date". Generally speaking, according to Mazmanian et al. (2005), individuals who carry mobile communication devices are exposed to the phenomenon of 'staying in the loop'.

Other studies corroborate the notion of 'Autonomy vs. Addiction'. For example, Tsai et al. (2019) examine the tension points created by negative social exchange and psychological well-being within the framework of instant messaging; Elhai, Levine, Dvorak and Hall (2016) conducted a survey on fear of loss, the need for touch, anxiety, and depression related to problematic smartphone use; Cao and Yu (2019) discuss 'technostress', the excessive use of social media and instant messaging in the workplace; Kirillova and Wang (2016) explore the effects of smartphones on employees' ability to connect and disconnect during vacation and rest, highlighting the importance of taking breaks to maintain health. Leung and Zhang (2017) discuss the use of information technologies in telework and its impact from the work-family perspective, noting the emergence of family conflicts.

Gupta, Li, and Sharda (2013) conducted research on the impact of interruptions, task hierarchization, complexity, and workload on the perception of users of instant messaging applications in relation to work. The study found that the effect of task interruption on completion time depends on the hierarchical level of the instant message sender. Koo, Wati, and Jung (2011) also examined how workplace hierarchy moderates the extent of relationships through smartphones and concluded that the use of social technologies results in positive task performance and that instant messaging can serve as complementary communication to other methods of communication.

Still related to this issue, Ou and Davison (2011) propose a study on interactivity and work interruptions caused by the use of instant messaging. They argue that technologies like instant messaging have shown their significant impact on people's daily lives, but their potential in business implementation has been inadequately investigated. These technologies play a crucial role in group work because they enhance the intercommunication and interconnectedness of professionals, both of which are essential for collaborative work.

Another point to highlight is the business risks associated with the use of smartphones, as described by Beckett (2015), especially concerning industrial espionage and the carelessness with business data when disposing of a smartphone without properly deleting the memory data and other information on the network. Sheer and Rice (2017) discuss the use of instant messaging as a strategy for building social capital and converting it into tangible results for real estate agents.

In the health sector, there is the study by Leão, Coelho, Siqueira, Rosa, and Neder (2018), in which the authors discuss the ethical implications of using smartphones in the doctor-patient relationship, telemedicine, and its benefits. Bautista et al. (2018) conducted research with nurses who use smartphones and messaging apps to enhance productivity and quality of care. Iversen, Melby, and Toussaint (2013) highlight the invisible work (articulated and collaborative) conducted via WhatsApp in the management of a Norwegian hospital. This article demonstrates how the internet and instant messaging applications have become tools for the creation of collaborative knowledge.

Considering the aforementioned studies, we can observe how the paradoxes of 'Control vs. Chaos' and 'Autonomy vs. Addiction' converge when smartphones and instant messaging applications are used to manage life and its implications on individuals' health.

All the review articles mentioned, dating from 2005 to 2019, point to both favorable and unfavorable effects regarding the use of instant messaging in the daily life of organizations. The studies collectively suggest that discontinuing the use of these tools would be both difficult and, in fact, undesirable in the current context. However, some articles emphasize the need for research that examines the productivity generated by the use of these tools, aiming to mitigate the most harmful effects of an excessively controlled virtual life. This is, to a certain extent, what this study proposes to highlight.

Next, we will discuss the methodological aspects used in this study, which, similar to the aforementioned studies, aimed to analyze the effects that technologies such as WhatsApp can have on workers' lives.

3. Methodology

In line with the Foucauldian genealogy (i.e., categories derived from the genealogy of power), the ‘paradoxes’ studied (Investigative model: technological paradox) uncover productivity that spans from conditions of subjection to practices of liberation at various levels within institutional (virtual) relationships among individuals.

Genealogy goes beyond merely interpreting texts or words; it aims to comprehend the significance of socially constituted relationships, hidden within the narratives and the concrete actions of individuals within networks of power. Genealogy undertakes the task of interpreting interpretations that have been constituted historically (Foucault, 1979; Oliveira, 1999; Nunes, 2012).

Adhering to the inventory concept of genealogy, we chose to conduct interviews guided by a semi-structured questionnaire, designed to gather evidence of the power effects stemming from the use of WhatsApp. This approach aims to draw a correlation between the paradoxes of mobile technologies and the Foucauldian categories of power.

The interview script included a set of questions aimed at investigating the ‘Control vs. Chaos’ and ‘Autonomy vs. Addiction’ paradigms. These questions were: Do you participate in work-related WhatsApp groups? / Approximately how many? / Were you consulted beforehand, or did you feel compelled to join these groups? / How was your contact information obtained for group inclusion? / Can you share any situations arising from the use of WhatsApp at work? / Can you mention positive and negative aspects of using WhatsApp in your work routines? / Do you engage in work-related activities or make contacts outside office hours using WhatsApp? / What activities are these? / Could these activities be conducted through other means? / Does WhatsApp affect the quality of referrals? / Are there institutional guidelines for using WhatsApp? / Do you set personal boundaries for using this tool at work? / Does the institution encourage or discourage the use of WhatsApp? / Do you believe that there is an institutionalization of WhatsApp, becoming an official tool within the institution? Why? / What are your thoughts on this matter? / Is the use of WhatsApp linked to the manager’s profile? / Are there alternative strategies that the institution could employ to address this reality? / Do you think that WhatsApp increases work-related exposure to control? / Does occupying a position of trust create an expectation of continuous availability for contact through WhatsApp?

Table 1 shows the a priori categories of the genealogy of power taken from Foucault’s texts, which guided the development of the interview script.

Table 1. A priori categories of the genealogy of power Sources: elaborated by Cardoso (2020, p. 65).

Pre-Established Genealogical Categories (Foucault)	Explanation of the categories proposed by Foucault and the works in which they are included
The system of differentiations	<p>“Allows acting on the actions of others: legal or traditional differences in status and privileges; economic differences in the appropriation of wealth and goods; differences of place in production processes; linguistic or cultural differences; differences in skill and competences, etc. Every power relationship operates differentiations that are, therefore, at the same time, conditions and effects” (Foucault, 1995, p. 246).</p> <p>[knowing-power]</p> <p>“The Subject and the power”.</p>
The instrumental modalities	<p>“According to the fact that power is exercised through the threat of weapons, the effects of the word, through economic disparities, by more or less complex mechanisms of control, by surveillance systems, with or without files, according to explicit rules or not, permanent or modifiable, with or without material devices” (Foucault, 1995, p. 246).</p> <p>[subjection practices]</p> <p>“The Subject and the power”.</p>
The forms of institutionalization	<p>“These can mix traditional devices, legal structures, phenomena of habit or fashion (as we see in the power relations that permeate the family institution); they can also have the appearance of a device closed in on itself with its specific places, its own regulations, its carefully designed hierarchical structures, and a relative functional autonomy (as in school or military institutions); they can also form very complex systems endowed with multiple apparatuses, as in the case of the State, whose function is to constitute the general envelope, the global control instance, the regulation principle and, to a certain extent, also the distribution of all power relations in a given social set” (Foucault, 1995, p. 246).</p> <p>“The Subject and the power”.</p>
The degrees of rationalization	<p>“The functioning of power relations as an action on a field of possibility can be more or less elaborated depending on the effectiveness of the instruments and the certainty of the result (greater or lesser technological refinement in the exercise of power), or even depending on the eventual cost (either the economic ‘cost’ of the means used, or the cost in terms of reaction, constituted by the resistances encountered). The exercise of power is not a brute fact, an institutional fact, nor a structure that is maintained or broken; it is elaborated, transformed, organized, equipped with more or less adjusted procedures” (Foucault, 1995, p. 246).</p> <p>“The Subject and the power”.</p>
Conduction of conducts	<p>“The term ‘conduct’ is, at the same time, the act of ‘leading’ others (according to more or less strict coercive mechanisms) and the way of behaving in a more or less open field of possibilities. The exercise of power consists in ‘conducting behaviors’ and in ordering probability. Power, in the end, results less from the order of confrontation between two adversaries or from the bond between one and the other, than from the order of the ‘government’” (Foucault, 1995, pp. 243–244).</p> <p>“The Subject and the power”.</p>
Positivity of power	<p>“It is a reaction of inclusion, observation, formation of knowledge, multiplication of the effects of power from the accumulation of observation and knowledge. It has transitioned from a technology of power that expels, excludes, banishes, marginalizes, represses, to a power that is, in short, a positive power, a power that manufactures, a power that observes, a power that knows, and a power that multiplies from its own effects” (Foucault, 2001, p. 40).</p> <p>“The abnormals”—January 15, 1975 class.</p>
Power-resistance relationship	<p>“It is true that at the center of power relations and as a permanent condition of their existence, there is an ‘insubordination’ and essentially stubborn freedoms; there is no power relation without resistance, without escape or evasion, without eventual inversion. Every power relationship implies, then, at least in a virtual way, a strategy of struggle, without that they come to overlap, lose their specificity, and finally become confused. They reciprocally constitute a kind of permanent limit, a potential inversion point” (Foucault, 1995, p. 248).</p> <p>[conflicts and cleavages].</p> <p>“The Subject and the power”.</p>
Freedom practices	<p>These are practices in which individuals define, for themselves, acceptable and satisfactory forms of their existence or of political society (Foucault, 2004).</p> <p>“The ethics of self-care as a practice of freedom—Sayings and Writings V”.</p>

It should be emphasized that there was a process of correlation between the ‘Theory: categories extracted from the genealogy of power’ (categories of analysis), the ‘Investigative model: technological paradox’ (analysis model), and the questions of the ‘Interview script’ so that it would be possible to analyze the content as proposed.

This research sought to preserve the identity of the public education institution and its civil servants as a way to encourage the participation and naturalness of the respondents. The interviews were audio recorded with the authorization of the subjects on a free and informed consent form (*FREE AND INFORMED CONSENT FORM – I... declare, for all legal purposes, to have been verbally and in writing informed sufficiently about the research: 'The effects of power resulting from the use of instant messaging applications on the work routines of employees of a public education institution.'* The research will be conducted by {Responsible Researcher}, from the Postgraduate Program in Administration, supervised by {Supervisor}, belonging to the permanent staff of {Postgraduate Program in Administration}, located in {City in Southern Brazil}. I am aware that this material will be used for the preparation of the Master's Dissertation, observing the ethical principles of scientific research and following procedures of confidentiality and discretion. I have been informed that the objective of the study is to 'analyze the effects of power resulting from the use of instant messaging applications on the work routines of employees of a public education institution.' I have also been informed about the purposes of the research, the procedures that will be used, the guarantee of anonymity and constant clarification, as well as having my right ensured to interrupt my participation at any time I deem necessary'). It was decided not to identify the subjects, associating them with the following codes: S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16, and S17.

The institution where the research was conducted has slightly more than 2,600 civil servants (data provided by the institution in January 2020). However, the universe of the study consisted of civil servants occupying positions of trust, exclusively CD (Director Position) or FG (Paid Function). This universe comprises 410 position holders, from which a sample of 17 subjects was extracted.

The sample, obtained through accessibility, comprises directors, directors' advisors, pro-Dean advisors, and other related advisory positions, all occupants of positions of trust who had worked at the institution for one year or more. All 17 subjects were distributed between units in the interior and the institution's headquarters, with 13 located at the headquarters (Dean's Office) and 4 on campus; however, of the total of 17 respondents, 11 had at some point belonged to the campus. The 'balance' of the sample between leaders (CD) and subordinates (FG) was approximately $\frac{1}{4}$ (6) for leaders and $\frac{3}{4}$ (11) for subordinates, justified by the fact that there are more subordinates than leaders within the institution's staff, thus enabling a collection of responses closer to the institutional reality.

We also sought sample balance in terms of the gender of the participants, as studies by Borges and Joia (2013), and Takao, Takahashi, and Kitamura (2009) identified that women are more exposed to 'technostress', likely due to the double workday and the levels of demand and pressure that society imposes on them in various areas of life. Thus, of the 17 interviewees, 9 were men and 8 were women. The difference of only one additional male subject occurred because the test interview (pilot interview) was utilized due to the richness of its details.

Given the above, the selection of the sampling method was non-probabilistic and non-random, characterized as 'by judgment', a type of convenience sample.

According to Hair et al. (2005), judgment sampling involves the selection of sample elements for a specific purpose. It is a form of convenience sampling in which the researcher's judgment is used to select sample elements. Therefore, the selection of this group presupposed that these subjects are more exposed to practices of subjectification and to the institutional exercise of power relations, due to holding positions of trust.

The study acknowledges that a sample of approximately 4.15% of the universe of occupants of leadership positions and trust functions is a limited percentage from a quantitative perspective. However, from the qualitative perspective of the subjects, it sought those who occupied strategic positions in the organization, acting as intermediaries between management, employees, students, and the external community, accommodating demands, exposing themselves more to communication, and having practically a '360-degree' view of the institution.

According to Minayo (2020), the definition of 'sampling size' is not the most suitable for certain qualitative researches, due to the fact that the 'universe' in question is not only the subjects themselves but also everything they represent. Thus, this qualitative research defined its number of research subjects through progressive inclusion, without determining a fixed quantitative number of participants, giving more importance to the content of the interviews without disregarding the number of participants.

Subsequently, this sample selection strategy proved indispensable, as soon after there was the outbreak of the COVID-19 pandemic, a very tumultuous moment to continue with the inclusion of new subjects in the sampling. Moreover, the interviews were conducted until the point at which the information in the participants' statements began to repeat and no longer contribute new empirical subsidies, characterizing the point of theoretical saturation (Strauss & Corbin, 2008).

Regarding the external validity of the sampling and the questions related to its size for possible generalization, Yin clarifies that:

The problem of external validity is a major hurdle in conducting case studies. Critics often claim that single cases offer a very poor basis for generalization. These critics, however, are implicitly comparing the situation to research conducted through surveys, in which generalization from the sample (if properly selected) to a broader universe is easily done. This analogy with samples and universes is incorrect when it comes to case studies. This is because survey-based research relies on statistical generalizations, whereas case studies (similarly to experiments) are based on analytical generalizations. In analytical generalization, the researcher is attempting to generalize a particular set of results to some broader theory (Yin, 2005, p. 58).

It is worth noting that although this is a case study and despite the aforementioned passage, this research did not aim to propose universalizing theses. This is because, according to Santos (2008, p. 36): “the social sciences cannot establish universal laws because social phenomena are historically conditioned and culturally determined”.

The interviews took place in the period between January 17, 2020 and February 11, 2020.

What was intended above all was the comparison of data from different sources, collection places, and hierarchical levels of the subjects in the work environment, thereby obtaining nuanced different perspectives.

4. Results

With regard to the ‘control vs. Chaos’ paradox, its combination with the category of the ‘System of Differentiations’ indicated that managers can exercise sophisticated and efficient control through the use of WhatsApp in the institution’s work routines. In this context, it is possible to assert that Foucault (1995) illuminates the use of technologies under such a combination, since the French proposed that one of the ways in which power manifests is through control and discipline over ‘differences’—utilizing legal, statutory, economic provisions, hierarchical positions in the production process, skills, competencies, or knowledge. Technological devices classify and hierarchize differences between subjects, granting a certain group, institution, or individual a position of dominance in ‘power games’.

Thinking from the perspective of Business Administration Science, according to Cupani (2016, p. 161), “power is, in turn, exercised in the form of management and strategic control of social and personal activities”. Management, as perceived within virtual workspaces, was explored through the interviews, revealing in S1 (as well as in S3, S6, and S7) practical examples of how control is exerted. This emphasizes the moral aspect (control as something ‘good’) within the work teams with the assistance of WhatsApp. Reports indicate that managers employ WhatsApp as a dynamic checklist tool, leveraging WhatsApp groups as supporters and collaborators in the development and oversight of activities.

As discussed above, technological devices are available to aid in differentiations. From a Foucauldian perspective, these devices fit into the ‘Instrumental Modalities’; however, with the association between ‘Control X Chaos’, the ‘Instrumental Modalities’ can manifest through the effects and articulate the words that generate these effects. For instance, fake news, despite not being a new phenomenon, has been disseminated more recently through WhatsApp. In addition to the dissemination of information (or misinformation), WhatsApp, as warned in Becket’s (2015) study, can pose a threat to the orderly registration and storage of institutional data, including the risk of information loss during phone sales, loss, or theft of cell phones containing sensitive data on their memory chips. Some respondents claimed to use the mobile device and its applications as a repository of information: “I usually organize my WhatsApp, filing conversations that are no longer in demand” (S13). In acknowledging the risk of institutional information loss, smartphones provided by the institution may be a strategy adopted to mitigate the risks associated with sharing institutional information, but they also increase surveillance over civil servants. This strategy has been studied by Divino et al. (2018) as a new interpretation of Bentham’s panopticon, analyzed by Foucault; a post-modern panopticon used by some public authorities to manage information, individuals, and collectivities.

From the perspective of the institutionalization of power regarding ‘Control vs. Chaos,’ it is possible to infer, in light of Foucault’s thoughts, that the most efficient way to institutionalize WhatsApp would be to make it a habitual phenomenon (that is, to normalize its usage among workers). This approach appears to have thrived, as part of the subjects typically include this tool among those considered official in the institution, as seen in the words of S2 and S5. Also, from this perspective, S4 highlights:

Just the fact that everyone keeps saying: ‘send me a WhatsApp (message) so I can put you here,’ with this usage, you end up entering the WhatsApp cycle. The tool may not be institutionalized in the sense of having a formal document, but it is already institutional; you have a cell phone that is an institutional device. Everyone uses it. There are groups, and what is used in the groups is actually the evidence of whether you

provided guidance on something or not (S4).

From the moment managers start to communicate with their team through messaging applications or organize work using WhatsApp groups, civil servants, in order not to lose track of what is being institutionally addressed, try to maintain control of their activities and avoid chaos resulting from misinformation. They also migrate to this tool due to a ‘herd effect’. Thus, a steering of civil servants’ behavior is observed in statements such as those of S14:

I never heard anyone in the institution telling me not to use it; actually, all the directors use it, the associate deans, the deans, everyone uses it and even uses it a lot, and sometimes, I even say, in the group there, that there are people who overdo and cross the limits and even put things that I didn’t have to put in, and so on, but no one ever told me it was not to be used and I never told any civil servant, my colleagues, that we would have some kind of restriction, other than what is in the institution’s communication policy (S14).

There does not seem to be a clear perception among the interviewees regarding institutional rules concerning instant messaging applications; they are unaware of any rules regarding its usage. The institution’s communication policy does not provide guidelines regarding the use of this tool in the staff’s work routines. What was found in the interviews was a divergence of opinions regarding whether or not to include WhatsApp among the official tools in the range of institutional communication options.

However, according to Silveira and Medeiros (2014), people’s reluctance to question themselves allows certain behaviors, perceived as ‘administrative’, to be regarded as ‘common occurrences’—normalized, as Foucault would say—as they are the outcome of decisions made to achieve normative objectives, standard operating procedures, and cultural norms within the organization. The guise of administrative neutrality is perceived by some civil servants as non-reflective use of the WhatsApp tool at work, or as reflective, in the sense that the institution deliberately refrains from influencing events and benefits from them.

This trend of transitioning activities from the physical to the technological-virtual environment and the consequences of this shift with WhatsApp are perceived, to a certain extent, as inevitable. The substitution of traditional communication tools can result in financial savings. For instance, the expenses associated with landline telephones may decrease with the utilization of the internet; moreover, many officials utilize their personal data plans and electronic devices, such as laptops and smartphones, and their applications, as only a select group of managers possess institutional phones.

This circumstance amplifies the presence of differentiation systems, which, according to Foucault (1995), delineate the distinctions in subjects’ positions within production processes and institutional environments. It’s worth noting that during the COVID-19 pandemic, as observed in the surveyed educational organization, institutions were unable to provide computers and internet access to all civil servants working remotely. The provision was reserved and restricted to those who lacked such devices or who, by virtue of their managerial positions, were entitled to this privilege.

Regarding the ‘Autonomy vs. Addiction’ paradox, Mazmanian et al. (2005) claim that those who use mobile technologies, such as WhatsApp, enjoy greater autonomy and flexibility in communication and in carrying out activities. However, for the dynamics of the ‘Degrees of Rationalization’, this requires engaging even more in the mission of staying connected, generating a hyperconnection of the individuals. In this case, what is considered as greater autonomy—hyperconnection—can mean, in institutional practice, its antithesis, that is, a greater subjection of the working subject.

According to Park (2019), hyperconnection fosters ‘addiction’ to technology, characterized by ‘compulsive use’. This compulsiveness gives rise to two types of dependents: functional dependents, who rely on technology’s resources to perform daily activities, and existential dependents, who depend on technology for social interaction, leading to compulsive monitoring of their virtual status and continuous preoccupation with virtual contacts (discussion partially derived from the dependency paradox). Additionally, Martínez and Echaury (2014) introduce the term ‘nomophobia’ to describe the irrational fear of being without a cell phone, derived from the English expression ‘no-mobile-phone phobia’.

Regarding the dependency on WhatsApp, S14 uses a figure of speech, employing the term ‘handcuff’ to illustrate the dependency. This choice is not a simple coincidence, as handcuffs are objects associated with confinement (in this context, it should be interpreted as a synonym for subjection).

Everyone, in some way, is virtually handcuffed to WhatsApp, and not just to it but also to other tools that WhatsApp has replaced, albeit without the same media exposure as other platforms. However, it still exerts control in these cases (S14).

From the Foucauldian perspective, dependence closely resembles ‘enslavement’ or subjection. The individual becomes more docile and submissive. Paradoxically, it is the individual themselves, subjected to increasingly competitive work routines, who contributes to the process of dependency by attributing new uses to technologies. They ‘cannot live without’ them, as they enhance productivity, aligning the individual with what is considered the best ‘quality standard’ (Mazmanian et al., 2005; Boswell et al., 2016; Elhai et al., 2016; Kirillova & Wang, 2016; Leung & Zhang, 2017; Krynski et al., 2018; Cao & Yu, 2019; Cooper & Lu, 2019; Park, 2019; Tsai et al., 2019).

While autonomy can be interpreted as a virtue valued also in the workplace, ‘addiction’, according to Abbagnano (2007), is a habitual conduct, which can also be articulated with certain dynamics of power. Different technological addictions are thus the product of objectification-subjection relationships, constituting a practice of subjection (Revel, 2005). Although there is no specific question about addiction to smartphones and WhatsApp, eight subjects (S3, S4, S8, S10, S12, S13, S15, and S17) suggested being addicted; it should be noted that this number may be higher, as individuals may have difficulty recognizing this condition or may require specialized psychological assistance to identify it. Below, the statements of S5, S10, and S15 illustrate the issue:

My rule is: if I leave work, I try to avoid opening WhatsApp to avoid reading messages because I think we are so accustomed, so addicted to WhatsApp, that when a message arrives, I feel compelled to read it, even though I could limit myself to reading messages only during working hours (S5).

I have a habit; I check WhatsApp several times a day. What I do at work is periodically check WhatsApp to see if any messages related to my work from the institution need my attention, so I leave it open on my computer (S10).

I believe that since everyone today has a cell phone, we all become a bit addicted. If it rings, even outside the house, even outside working hours, I can’t resist answering, even if it’s not an emergency. I can’t say ‘I’ll answer tomorrow’ if someone asks; I end up replying immediately (S15).

S17’s response shows how people are exposed not only to psychic risks but also to physical ones. Martínez and Echaury (2014) associated the use of the device with the risk to the physical integrity of people who had accidents because they were talking or typing on the phone while driving their cars. This fact does not differ much from what is reported when the subject walks down the street distracted and exposed to accidents and other dangers.

As you get to know and use the tool further, you tend to become more restricted, obstinate, and obsessed with it. I think there’s an issue, but it’s not so much about the use of WhatsApp in the work context, but about the relationship that we end up establishing with the application, which can be a little unhealthy. Yesterday, for example, I found myself going home from here because Uber didn’t work. I don’t know why Uber didn’t come, so I canceled it; then I went from here to there, looking at WhatsApp and not paying attention to where I was going, to the situations around me. I crossed streets looking at my cell phone, and then I recognized how much it takes attention away from the present, the place, and the space, from your surroundings. And I don’t remember any accident I have suffered because of being there, right? But it’s common, right? I think it must be common with people (S17).

On the other hand, despite declaring a certain degree of addiction to WhatsApp, S17 claims to struggle and monitor himself to be a person less subjected to this technology:

But it’s common, when I’m at home, to go for hours without looking at WhatsApp, on vacation, weekends, at night hours! But also because I want to do that, to be home and get involved with the chores, with the housework, with the family, and with the children. I have to observe and evaluate myself; I take care of myself: ‘Wait a minute, I’m at home, I’m with my children and I have to pay attention to them, I have to do this’ (S17).

Given the above, it is possible to verify that the respondents use the smartphone on different occasions of daily life, including at work, and those who do not use it can be seen with strangeness for being ‘less practical’ and ‘disconnected’ from a technological universe of facilities.

In short, the following power effects were detected, associated with the technological paradoxes of ‘Control vs. Chaos’ and ‘Autonomy vs. Addiction’, resulting from the use of the WhatsApp instant messaging application in the civil servants’ work routines: for ‘Control vs. Chaos’—control of routines, classification differences, self-surveillance, surveillance, loss of information grounds, reduction in the degree of formalization, fake news, constant need for investments in systems, equipment, maintenance, and personal training, and increased agility. For ‘Autonomy vs. Addiction’—flexibility of time and space, nomophobia (fear of being without a smartphone), anxiety, fear, tension, burnout, stress, panic, presenteeism, and FOMO (Fear of Missing Out) or Syndrome of Fear of Missing Something, tinnitus (a type of ringing in the ears), and accidents caused by the lack of

attention/distraction generated by the smartphone. It is worth noting that, although there is no direct question about technology addiction, eight respondents suggested they were addicted to WhatsApp.

5. Final Considerations

As the research question and objectives indicated, this article aimed to analyze the power effects resulting from the use of instant messaging applications (WhatsApp) in the work routines of civil servants at a public educational institution. To that effect, the model of paradoxes of mobile technologies was employed, focusing on two pairs of paradoxes: 'Control vs. Chaos' and 'Autonomy vs. Addiction'. Additionally, Foucault's theoretical framework of genealogical categories of power was utilized to discuss the paradoxes.

Through the interviews, it was discovered that WhatsApp has been operating as an influential power device in a multidirectional manner in the work routines of a public educational institution. WhatsApp proved to be disseminated throughout the institution through the phenomenon of habituation.

Regarding the 'Control vs. Chaos' paradox, WhatsApp is extensively used to manage routines and team management, especially concerning staff location and work hours, as well as the control of deadlines for activity delivery. It can be seen that strict personal control is disguised as flexible interactions through WhatsApp, suggesting that managers use the 'System of Differentiations' (here, the hierarchical position) to exercise control in the form of management, supported by the use of a technological tool (Foucault, 1995; Divino et al., 2018).

As indicated by Foucault (1995), in the category 'Instrumental Modalities', communication issues, such as fake news, screen captures of confidential conversations, incomplete message exchanges, storage and history difficulties, and the selective control of information, are recognized as obstacles to institutional transparency and control over institutional information.

In this regard, since it is illegal and even immoral, the strategy of counter-information must be contested to prevent damage to both individuals and institutions. To combat fake news, "educational institutions must equip their community to navigate the internet safely, teaching them to filter the content they engage with, share, and make available to others" (Antunes, Sanches & Lopes, 2019, p. 1).

Another point to highlight is the 'classification of civil servants' based on the decision to use WhatsApp or not, which can generate uncertainty, insecurity, and even controversies among workers (Cardoso, 2020). The statements indicate a lack of guidance that leads to outcomes such as overexposure, lack of skills, saturation, impulsive communications, harassment, interpersonal conflicts, and rework resulting from inefficient communication. In other words, all these issues ultimately cause discomfort and attempts to avoid the tool, triggering isolation among individuals. Indeed, among the responses from interviewees, there are reports of animosity and disdain among colleagues, and between professors and students, which lead to distancing, exclusion from WhatsApp groups, and the recording of incidents in correctional agencies.

It was discovered through the paradox of 'Autonomy vs. Addiction' that individuals who adapt well to changes and technologies are less likely to develop feelings of insecurity, mistrust, aversion, and others, resulting from the hierarchical classification to which they are subjected. The need for individuals to seek approval by appearing connected, competent, and disciplined to their supervisors stems from the power of normalizing the acceptance of technology (Foucault, 1987).

Some interviewees also reported experiencing episodes of distancing from their families due to prolonged involvement with WhatsApp; others admitted to family conflicts because of this. There was no clear perception among the staff regarding the limits of WhatsApp use. This ambiguity is why the interviewees expressed interest in the discussion.

Based on Foucault (2004), it is possible to deduce that the proliferation of (virtual) spaces, which foster and materialize individualizing power relations, reduces the field of affective, active, and ethical-political encounters between people. Taking refuge in virtual spaces and experiencing isolation can hinder this active engagement in social power dynamics that materialize in the workplace. For instance, the dimension of collective struggles and union organization can be seen as 'Practices of Freedom' experienced in various work environments (Foucault, 1995; Veiga-Neto, 2001).

In this context, Chevitaese, Fonseca, and Trajano (2017) recommend that individuals should initiate their struggles by focusing on possible practices of freedom, which is, in a way, what the comments of some respondents indicate—they seek to mitigate the controlling and subjecting practices exercised through technology in any way they can. Foucault's works suggest that subjects should avoid the trap of accommodation imposed by the 'devices of power' (a term used by the French intellectual to refer to the various mechanisms that enhance and maintain the exercise of power within the social body), which lead to political-social apathy (Passetti, 2003, 2019).

Such considerations indicate that workers are exposed to a set of productive techniques, marked by competition and the demand for productivity. The relationship of competition and competitiveness in WhatsApp, as virtual work environments, according to some reports, often exposes discussions in virtual groups that become a confusion of vocal masses (where much is exposed but little is understood), sometimes making group work and the collective construction of alternatives to the daily dilemmas in the workplace difficult or unfeasible.

Another point to consider is that the immediacy of this type of tool can reduce the time available for reflection to build mature ideas and feedback, 'pressuring' individuals into a spontaneity that can place them in unnecessary and uncomfortable situations of exposure.

It is observed that a space that could be used ethically and politically for dialogical and critical discourses, thereby reinforcing affective and professional links and ties to beneficially engage workers in the work environment, is instead dominated by excesses of empty discourse along with narcissistic, selfish, and individualizing practices. This promotes, to a certain extent, the loss of the sense of collectivity and the devaluation of critical reasoning. In other words, what we witness are situations that have already occurred in the 'concrete' world, now replicating in the 'virtual' world, which are amplified and supported by the overexposure promoted by a technological device of social interaction (Cardoso, 2020).

Freedom practices, when embraced by minority groups and actions in the workplace, can be interpreted as acts of insurgency or counter-conduct. Foucault asserts that these practices involve the emergence of these groups' ability to create fissures in the status quo, enabling new perspectives on the modes of subjectivation and power relations for the subject-worker. Ultimately, it is possible to forge ways of being that are more autonomous and critically engaged in the workplace (Nunes, 2013; Soler, 2017; Dunker, Tezza, Fuks, Tiburi, & Safatle, 2018).

For Foucault (2004), only 'Practices of Freedom' are capable of circumventing the most harmful effects of power, thereby producing subjectivities. In other words, these practices make a 'worker-subject' more aware of institutional power dynamics, enabling them to better recognize their rights and lead a more autonomous and healthier life.

As reported in the interviews, the existence of technological paradoxes intersecting with genealogical categories of power becomes clear. For the 'Control vs. Chaos' paradox, there are harmful effects for both the organization and the workers: excessive management and control of workers; communication noise; chaos in information storage; loss and theft of data; hyperconnectivity of the individual; work interruption, overlapping demands; facilitation of improvised actions; work feedbacks without due maturation; passing on demands in a 'problem delivery' style; 'herd effect' when migrating to WhatsApp, among others. On the other hand, within this same paradox, there is a favorable perspective such as: the use of WhatsApp as a dynamic checklist for activities; the economy of resources; agility in communication; facilitation of communication in periods like social isolation, or, the adoption of remote work, for example, during the Covid-19 pandemic teachers used WhatsApp to forward didactic materials to student groups and conduct individualized service. For the 'Autonomy vs. Addiction' paradox, intersecting with genealogical categories of power, harmful effects also exist: subjects exposed to psychological reactions linked to technology, such as stress, fatigue, phobia, and anxiety; and technological dependence. Yet, from a favorable perspective: the fact that the worker has a tool that aids in the communication and organization of groups by subjects or demands; to hold meetings and work from anywhere without the need for a large apparatus.

It is emphasized that there was no intention to indicate, in essentialist or even absolute terms, whether the use of WhatsApp is good or bad for the institution or for individuals, since they themselves can perceive, as the interviews indicate, the positive and negative impacts of power. In a practical context, this research enables workers, from this and other institutions, to reflect on the effects of WhatsApp on work relationships. The study hopes to support the development of research and the implementation of actions from the Work Life Quality Program (WLQP), and the pilot project for implementing the telework modality, concerning the expansion of debates on the limits of WhatsApp use.

Finally, new studies on the ethical repercussions of using WhatsApp, and other technologies—considering the evolution of artificial intelligences, can contribute to organizational studies and work relations: reflection on privacy and confidentiality, transparency and responsibility, equity and inclusion, code of conduct and organizational policies, and impact on organizational culture are possible avenues for future research.

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Authors' contributions

Master ROBERTA ELPÍDIO CARDOSO was responsible for the study design, literature review, data collection and analysis, manuscript writing and revision. Professor Dr. NEI ANTONIO NUNES was responsible for the study design, in depth literature review, writing and revision of the manuscript. Dr. ALEXANDRE ZAWAKI PAZETTO contributed to the literature review, writing, revision and translation of the manuscript. Master DIEGO PACHECO assisted with the literature review, data analysis and manuscript revision. Master JOCÉLIA FELÍCIA ANDREOLA contributed to the literature review, data analysis and manuscript revision. Master RICARDO LEMOS THOMÉ assisted with the literature review, data analysis and manuscript revision. Professor Dr. JOSÉ BALTAZAR SALGUEIRINHO OSÓRIO DE ANDRADE GUERRA collaborated on the study design and manuscript revision. All authors read and approved the final manuscript. All authors contributed to the study.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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