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DIGITAL TECHNOLOGIES AND MULTIPLE TEMPORALITIES IN THE JOURNALISTIC ECOSYSTEM

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Abstract

New forms of multiple temporalities delimit the contemporary journalistic experience in an expanded environment of technological mediations, transfiguring the institutionality of the media in a multiplicity of new environments and communicational practices. This proposal of analysis is explored in this article by means of an articulation between the notions of temporality and technological mediation. The work consisted of bibliographical and documentary research in reference literature and diagnostics of research institutes on the recent transformations of digital journalism, offering elements to understand these new journalistic temporalities crossed by technological mediation.

Keywords

Temporality; Technological Mediation; Journalistic Ecosystem.

Introduction

The most recent diagnosis about the transformations and tendencies of journalistic organizations in the world have been creating in the last few years a scenario of transformations in journalism, one in which technology assumes a primordial role in the new configurations of the activity. Such changes have been affecting not only professional infrastructures and practices, but they have also been challenging entrenched understandings of journalism. Among these is the temporal dimension, which since the early experiences of journalism in the seventeenth century has been one of the marks of its specificity as a participant phenomenon in the construction of an experience of social time, resulting from an objectification of practices, social relations and of representations about the world.

We will explore in this article the general hypothesis that a rethinking of the experience of journalistic temporality (and of media in general) is occurring, based on the change in the pattern of mediation produced by the digital media apparatus. If, in the context of traditional media, it was possible to think of the media as an institutional subject that produces interactions and mediations in the media field, in the digital media environment a new type of mediation is instituted: the technological one, in the form of infrastructure, language, platform and tools that condition and redirect communicational forms and experiences. Thus, the terms temporality and mediation gain an effort to problematize their possible meanings within the communicational field.

This new digital environment (interactional and cognitive) operates communication practices that point to a reconfiguration of conventional forms of mediation exercised by traditional media, such as institutional mediation. With technological mediation, new mediating logics are being expanded, now driven by the digital technologies of participation and interaction networks. They transform the media's institutionality into a multiplicity of new communication environments and practices that have been redefining organizations and collectivities towards an increase in the entry and participation of new users, reinforcing the idea of an ecosystem with greater capillarity, diversity and integration.

Temporal forms that are characteristic of traditional journalistic media - instantaneity, simultaneity, periodicity, novelty and public revelation (Franciscato, 2005) - are also updated by this new environment. The delimitation of present time as a path of the journalistic experience is thus inquired from new promises of multiple temporalities that are arising for these digital environments.

More specifically, the constant research in this paper explores a particular kind of mediation, of a technological nature, which has become one of the bases for new media configurations and practices in society. In addition, it has been directing new possibilities of media experiences in society. Journalism carries, among its central characteristics, the creation of present time meanings in the contents and social practices of which it participates. Therefore, the purpose of this work is to understand how this technological mediation modifies processes and temporal relations in the journalistic activity, centrally affected by digital technologies of information and communication.

Two theoretical paths support this discussion: on the one hand, the understanding of temporality as a phenomenon that manifests itself particularly in journalism; on the other, technological mediation as an emerging condition of contemporary societies. The questioning of the ways in which these two perspectives are articulated in digitized journalism is carried out based on two methodological operations: bibliographical research on the conceptual bases of these phenomena; and documentary research on digital journalism reports and diagnostics produced in recent years by three research organizations on journalism: Tow Center for Digital Journalism, Pew Research Center and Reuters Institute for the Study of Journalism. The data provided by these reports will serve as material for the interpretation of new scenarios of temporality in journalism traversed by technological mediation.

1. Social temporality

Journalism has been a participant phenomenon in the construction of an experience of social time, through an objectification of practices, social relations and representations about the world. As relational construction, the time of journalism is linked to the time experienced by the social actors: a time made present by social action, whose tendency to standardize and regulate the rhythms of everyday life affects individuals and institutions.

This social perspective of time originates in a sociological approach that has its roots in Durkheim (1965) and later in Sorokin and Merton (1937), with an emphasis on normative and integrative functions. Norbert Elias defines time as a "symbolic representation of a vast network of relationships" (1998, p. 17). Giddens (1989, p. 14) observes how temporality is institutionalized in three dimensions: the *durée* of everyday experience; the lifetime of the individual; and the *longue durée* of institutions - in which "each participates in the constitution of the other" (1989, p. 28).

We know that the institutional regulation of time has become an operational factor for the functioning of modern capitalism and complex society in general (Segre, 2000, p. 163). At the same time, it assumes an individual aspect, since it will be individuals who will act in the social space according to the temporal constraints that exist from a very early stage in the life of each of them (Elias, 1998, p. 22).

A specific type of temporality is core to journalism: the experience of the present time, from which several literatures in journalism have adopted the expression "journalistic timeliness" as a specific mark of this activity. The present time in journalism can be understood from three foundations:

a) present time is put into perspective, depending on sociocultural references that allow individuals to construct a sense of present in relation to a past and a future;

b) The time of the actor's experience when acting in the world is mainly present. The social construction of a present sense of time occurs in the tension and articulation between the actor's different ways of acting in the social environment, since it is rooted in the present experience. In his work The Philosophy of the Present (1959), George Herbert Mead seeks to understand the world as centered on a present time;

c) The routines of quotidian life are full of markers of the present time. Living in the world of everyday life implies a referential of place and time marked by "here and now" (Berger & Luckmann, 1978, p. 39).

The term quotidian is referred to here as a space-time environment characterized by the frequency and repetition of specific actions and contents which demarcate a type of social situation or position or, according to Giddens, situations in which there is "preponderance of familiar styles and forms of conduct, sustaining and being supported by a sense of ontological security" (1989, p. 304). According to Sodré, the journalistic discourse "operates an industrial appropriation of time and its reduction to the experience of quotidian life", attending an "organizing rhetoric of the factual singularity of the quotidian" (1996, p. 134-135).

Recent studies have reinforced the multidimensionality of contemporary experiences of social time, updating this approach. Green (2002, p. 283) indicates the changes in the temporal organization throughout the twentieth century, involving relations between natural, social, chronological and individual-subjective time, transformations that are associated with changes in the experience of space, mobility, public and private boundaries and in the construction of space-time relations in the cities. Cipriani shifts from an idea of homogeneous and continuous time to a proposal of "plurality of temporalities and a multiplicity of forms of knowledge, consolidated or still to be acquired" (2013, p. 5). Nugin (2014, p. 342) emphasizes that time is a "multi-layered" phenomenon, a relationship between personal time and social time, but it also differs from one social group to another. In these different experiences and temporal perceptions, technology has exerted an increasing impact, says Gray (2017, p. 61) in his studies of time in

educational processes.

With the new social configurations reorganized based on interactive digital technologies, this impact reaches, in varied form, different groups and social relations. Green (2002, p. 283) explores one of these phenomena, which are mobile communication technologies, proposing three emerging mobile-time experiences: the changes in the rhythms of social activities with the use of mobile devices; the penetration of mobile devices in the everyday life of individuals, including the family space; and the relations between this altered everyday time and wider social processes. Therefore, I conclude that the relations between the moving space and time in contemporary life are not constant, but are locally mediated at various levels, from the personal, institutional and more extended collectives.

2. The journalistic temporality

This perspective of social time provides a basis for a formulation (Franciscato, 2005) to characterize the temporal phenomenon in journalism by highlighting some of its fundamental traits:

- The present time is an essential dimension of journalism;
- The journalist seeks to operate immersed in the experience of the present time of the actor when acting in the world and, for this, they develop symbolic resources to live through and even order this experience;
- The temporal experience of journalism linked to the present was established in the historical course of the emergence and consolidation of journalism;
- The temporality of the present oriented the institutionalization of journalism in the internal organization of its practices and definition of its product, as well as in the social relations established by journalistic organizations;
- The temporality of the present gives a cultural form to the main journalistic product, the news, making it recognizable and establishing its limits of meaning, performance and social existence;
- The news brings, often explicitly, marks of the present time that affirm its temporal uniqueness and its brief duration;
- There is in journalism a fundamental synchronism between the temporality of its product and the time of a series of public actions under construction;

Journalism not only produces reports about events, but its social insertion causes it to be immersed in the process of constructing the social experience of the present. Journalism does not create the present time, but it acts in a privileged way as reinforcement of this social temporality;

Journalism exists in permanent tension because of the risk that the sense of time that it brings in its discourse will become detached from the time of the world.

To make these perceptions more systematic, historically constructed descriptive categories of journalistic timeliness can be used to describe specific types of temporal phenomena that journalism operates:

a) instantaneity: it refers to a material possibility of absence of the time interval between the occurrence of an event and its registration, transmission and reception by an audience, as well as a symbolic reference linking sociocultural phenomena to present time experiences.

b) simultaneity: journalism operates relations of simultaneity by proposing to synchronize actions, events and subjects at one the same time, even if there are differences in the speed of realization, duration, consequences or ramifications.

c) periodicity: The regular production of news gave society a continuous involvement with events, developing patterns of monitoring and remembrance and directing ways of defining news. Today, this traditional model is challenged by the instantaneousness of the continuous flow.

d) novelty: the news is inseparable from a logic of innovation, originality or renewal that standardizes a way of recognizing and defining events and presenting them publicly through journalistic reporting.

e) public revelation: journalism builds temporality in its discursive logic, because it intervenes in the construction of time when it is enunciated by discursive rules. The time of enunciation is, for journalism, a milestone in the time of public circulation of news.

In recent years, journalistic temporality has been a phenomenon treated in different studies according to the theoretical basis that supports the approach. It is noticeable an ascendancy of the language and narrative studies trying to understand the effects of temporal sense present in the journalistic discourse, in particular the one of actuality in the printed daily newspapers (Antunes, 2007). The notion of event then appears as a reference for rethinking this discursive configuration of journalism.

With the spread of journalism by digital media in network, journalistic genres from traditional media, such as television and radio, have had their temporal reference values redefined (Oliveira, 2017) in the sense that the time of the broadcast does not necessarily correspond to the time of the audience when watching their products, available on the web for access in particular temporal experiences. If the periodization of the broadcast loses centrality in communicational interaction, the importance of new temporal indicators increases, such as speed culture, continuous flow and multiple temporality on media such as the radio (Mello, 2014) in environments of media convergence.

At the same time, its multiple tools and digital media stress the social constructions of time. The category of memory (Ribas, 2012) is affected by devices for indexing and retrieving information, altering patterns of remembrance and social forgetfulness, by making available the indexed past for journalistic facts of the present. Journalism, at the same time as it builds temporality marks from its everyday narrative, influences perceptions about history by operating movements between past, present and future (Matheus, 2010).

3. Social mediation

Mediation is a polysemic term in the human sciences. It has roots in philosophy, education and applied social sciences in general. Their uses, therefore, also vary between a middle-term idea in philosophy as a way of articulating two elements in one reasoning, passing through an idea of an intermediary that assists or operates an approximation or encounter between subjects and also as an idea of a substrate that enables or establishes the conditions for a knowing or acting, either as ordering, attribution of meaning or representation of a reality. For the purposes of this article, the second and third formulations will be accentuated, as incorporated by journalism.

In the theoretical environment of the social sciences, the forms of social mediation have been considered from the point of view of sociocultural relations (as mediators of social processes) or with a stress applied to the role that the media play in this experience. Couldry (2008, p. 379) explains that a wider sociological use of the term contemplates any process of intermediation, such as money and means of transportation. It recognizes, however, an increase of its understanding in media studies from the 1990s, with emphasis on the effects of the media activities on the social world.

A central author for mediation studies in the field of social sciences is Roger Silverstone (2005, p. 202-203), for whom the growing centrality of the media in the exercise of power and in the conduct of everyday life in modern societies has placed the study of mediation at the center of the sociological agenda. The author acknowledges that mediation processes have a dual role by the media and by social subjects who receive these contents and are also mediators.

In media practices, mediation can occur at different moments in the flow of communication: in production, circulation, interpretation, reception or recirculation, "as interpretations return to production

or to general social and cultural life" (Couldry, 2008, p. 380). If this design implies a circular and linear flow, Couldry emphasizes that one of the characteristics of mediation is its non-linearity, occurring at different levels and senses according to social situations, reinforcing an idea of the complexity of multiple and often dialectical processes (Couldry, 2008, p. 389). Lunt and Livinstone (2016, p. 464) are concerned with the differentiation between mediation and mediatization, emphasizing on the latter specific characteristics not always present in the first term, such as the social extension of the human capacities of communication, at times replacing previous social activities with mediatized experiences.

Due to this strong media influence in mediation processes, its presence as a recurring phenomenon in the communicational field is understandable. In these studies, the term mediation has reached some predominant dimensions: cognitive (discursive mediation between subjects and reality), interactional (social practice of meaning construction), institutional (actors with social legitimacy to have a mediating role between actors and social fields) and technological (as a device that materially enables interactions).

One of the main contributions to this debate occurred through the work of Jesús Martín-Barbero, particularly his book *Dos Meios às Mediações*, as well as his later revisions. If in that book Martín-Barbero (1997) referred to the "cultural mediations of communication", citing in particular three places of mediation - daily family life, social temporality and cultural competence - in later visitations he refines his thesis and, without rejecting the previous statements, reviews the role of communication in the cultural process, proposing the "communicative mediations of the culture": "technicality"; the growing "institutionality" of the media as social institutions, "sociality" and "rituality" (Martín-Barbero, 2009, p. 151-2).

It is beyond the scope of this article to explore the richness of this reading, but only to accentuate the author's maturity in this matter: "a change had to be made that was not to go from mediations to media, but to realize that communication was becoming more adept to the new technicality, which was the 'institutionality' of technicality" (2009, p. 153). At the same time, it is possible to emphasize the researcher's recognition about the movement of his thought in search of the understanding of the phenomenon and of the "contemporary cultural mutations, whose axes are times/spaces and migrations/flows" (Martín-Barbero, 2018, p. 24).

The Technological Mediation

Among these new communicative mediations of culture, one can explore technicality as an analytical category for the purpose of elucidating new temporalities that are constituted in the digital journalism environments. Martín-Barbero characterizes technicality as the "sociocultural thickness of new technologies", which makes it possible to look at a "new social status of the technique" (2018, p. 18). It acts "not only in the space of computer networks, but also in the connection of the media - television and telephone - with the computer" (Martín-Barbero, 2018, p. 18).

Girardi Júnior interprets this technicality in Martín-Barbero by the way in which he recognizes the computer not exactly like a machine of production and provision of symbolic objects, but as executor of a task of mediation when processing information: "The numerical code becomes one of the universal mediators of symbolic production under this new technicality" (Girardi Júnior, 2018, p. 150). It is a computational logic that enables the emergence of new industrial formats. "There is no doubt that many, or even all dimensions of society are now mediated by digital network technologies in ways that matter, and many would agree, that matter more and more" according to Lunt and Livinstone (2016, p. 463), a scenario where the authors find it possible to apply the term mediatization.

The Journalistic Mediation

What predominant types of mediation do journalism play in society? The four dimensions of mediatic mediation cited above - cognitive, institutional, interactional and technological - are present in journalistic activity. The first can be expressed in the idea that "journalism is an activity based on the

contract of cognitive mediation between reality and individuals" (Guerra, 2008, p. 143). What sustains this cognitive perspective is the journalist's promise to take the facts, in the form of reports, to an audience. In order to do this, it resorts to a notion of truth and fidelity of these accounts through which individuals would reach the reality of occurrences.

But this effort to search for truth occurs because the journalist seeks to fulfill another form of mediation, the institutional one. "The general principle that structures the journalistic institution in its modern conception is its mediating function, that is, to operate the supply of information about current events for individuals" (Guerra, 2008, p. 144). This would then be a mediation restricted to the provision of journalistic information, an informational mediation.

It happens that the contemporary scenario of journalism has been affected by an idea of crisis or loss of legitimacy, centrality, recognition and profitability as a journalistic organization capable of producing socially relevant knowledge for its audiences. An example of this is that the tension between the model of commercial journalism and the values of journalism as a social institution has been established since the nineteenth century in countries such as the United States, crossed the twentieth century and gained, in this century, the airs of an irreconcilable impasse.

In this same perspective of mediation of social meanings, Cremilda Medina emphasized the interactional, dialogical and temporal dimension of journalistic mediation, although operating from a microsocial perspective of analysis in which the social construction of meanings is not concentrated in the institutions, but in everyday life, in the streets. The author sought to appreciate "the practice of the reporter as a social mediator of current discourses" (2003, p. 34) producing "sociocultural mediations of the present" (2003, p. 79). For the author, the social dialogue presentifies when "in wishing to tell the current social history, the journalist creates a mediating mark that articulates the fragmented histories" (Medina, 2003, p. 48).

4. Journalistic temporalities and technological mediations

How does technological mediation manifests itself in digital journalism and how does it change the temporal experiences that journalism produces? This question was explored based on reports and diagnoses on scenarios and trends in digital journalism produced between 2012-2018 by three journalistic research organizations: The Tow Center for Digital Journalism, Pew Research Center and Reuters Institute for the Study of Journalism. Taken together, these dossiers express the most recent changes taking place in journalism, whether structural or innovations in journalistic practices, processes and products. From the variety of new situations, those that were able to influence the processes of symbolic construction and temporal experience of journalism were accentuated.

The computational base that regulates this new journalistic practice breaks with the routines and habits constituted in and by the traditional media. Elements such as algorithms, artificial intelligence, automation, digital social networks and big data are devices that structure vast areas of operation on the internet. They make up this fabric of technicality, acting as technological mediators because they condition and introduce new possibilities of sociocultural experiences: they affect the logic of traditional media, leading them to operate within this new informational space; expand resources and communicational skills of producers and audiences; establish codes, formats, possibilities of connection, reading and sharing of several textual units; innovate industrial formats and fuel the emergence of new standards; intensify transit situations between forms of media mediation, particularly institutional (generated within the media) and interactional (triggered in encounters sprayed by digital social networks).

It would be wrong to perceive these technological elements as isolated factors. They are, in fact, the expansions of a common sociotechnological pattern and, therefore, complement each other as the faces of a technological media mediation. In considering the transformations they introduce in the temporal

experience of journalism, they affect at different intensities each of the five characteristics of journalistic temporality, since they form the basis of a complex system that operates under the logic of decentralization and multiplicity. To this diversity and integration are also associated principles of capillarity (horizontality and vocation to aggregate new members), contributing to constitute an informational ecosystem in which flows of information and action have a continuous time: they become intertwined instantaneously and simultaneously.

4.1. Automation and Social Memory

One of the central components of these technological mediation processes on the Internet is digital automation. The core of this concept is to enable automated decisions in a vast field of activities, that is, the use of informational tools so that decisions are independent of human reflection to occur. This may be true for almost any decision to be taken in the Internet environment - it may be impractical to find an example of action in cyberspace without the use of these automated tools. However, this logical process has achieved fruitfulness in the industrial sectors by introducing more efficiency and productivity, among them the cost savings and the optimization of time.

Automation affects temporality in journalism in different ways, but it especially reconfigures the boundaries created symbolically to separate the present from the past. Automation makes it possible to create a system that integrates different time regimes in the same environment based on the category of social memory (Palacios, 2010). In the digital platform environments, automation experiences have been characterized as "semantic web" - a web environment where intelligent agents, such as software, can automatically perform complex tasks for users (Berners-Lee et al., 2002, p. 25).

Studies such as that of Lammel and Mielniczuk (2012, p. 192-193) have carried this understanding to comprehend journalistic processes. Among the characteristics that these authors perceived, in an empirical analysis of the web product *BBC Wildlife*, there is the amplification of the potentiality of the use of social memory available in the informational apparatus and actionable in the form of a "memory-activating" system. This possibility indicates a promise of simultaneity of temporalities between past and present in journalism. As Palacios (2010, p. 38-39) points out:

> never in historical times has our society been so involved and occupied in processes of memory production; the stock of social memory has never been so easily and quickly available, as well as journalism so centrally located amid all this.

In the Reuters Institute *Journalism, Media, and Technology - Trends and Predictions 2018* report the researchers interviewed 194 publishers, executives and managers of digital media business from 29 countries and found that almost all of them intend to adopt automation strategies to increase productivity without having to put a direct pressure on journalists (Newman, 2017, p. 31). This strategy expresses one of the principles of automation: the optimization of time. In the journalistic environment, automation is thought to reduce production time by means of eliminating tasks that are repetitive or tending to mechanization, data mining or data management, as well as the elimination of parallel tasks (of minor importance and, therefore, automatable) in the execution of an activity. In this way, more favorable conditions are created for the adoption of continuous flows of production, with the reduction of stages that demand time, aiming at an accentuated search for a material instantaneousness.

4.2. Social Temporality and Computational Logic

The concept of temporality expressed in this article has a social perspective, which is faced with the emergence of the computational bases introducing automation logics, artificial intelligence, databases

and algorithms. Aspects such as social practices, the institutionality of social actions and routines of everyday life are crossed by procedures and logical tools for solving simple tasks or complex problems, a consequence, in large part, of the ways in which technological mediation restructures social relations. Thus, the social experience of the present time conforms to the operating structures of computational logic systems and becomes dependent on these competences to generate their socio-symbiotic forms of mediation.

Automation takes the form of "structured collections of information and sets of inference rules that they can use to conduct automated reasoning" (Berners-Lee et al., 2002, p. 26). One way of applying the principle of automation is the development of artificial intelligence devices. In journalism, artificial intelligence can enable journalists to analyze data, identify patterns, trends and types of sources needed, to more accurately observe little discernible situations and to perceive riches of detail (Newman, 2017, p. 29).

Marconi and Siegman (2013) reported that journalists from the Associated Press News Agency proposed, in 2013, to develop a computer program (robot) with artificial intelligence ability to automate the creation of certain news content. The justification presented was the need to address two contemporary challenges: "the relentless increase in news to be covered and the human constraints associated with covering it" (2013, p. 1).

Automation and artificial intelligence create conditions of synchronism between processes, stages, events, their representations and their reception by the public, technologically mediated by computational logic. Although the term artificial intelligence may seem frightening to a profession that wishes to be intellectual, it is increasingly common to introduce such devices into journalistic work environments.

4.3. Algorithms and New Temporal Flows

Another tool of technological mediation that intensifies in the digital network environment is the algorithm. It is like a set of instructions that a computer performs when processing information to solve a problem or accomplish a task. It acts as an automated tool that is independent of a human decision to accomplish each task. Today, it is difficult to see a web application that does not have algorithms to perform tasks, either to automate searches offered by a specialized website or to give visibility to certain pages in digital social networks that are appropriate for user behavior. As this standardization results from a human decision or behavioral learning (Pew, 2016, p. 7), the human factor is relevant in the definition of possible solutions to problems.

Journalistic processes in digital environments are now structured by algorithms. The search for information on the internet by journalists, whether basic data or interpretations, results in predefined pages. By imposing models, the algorithm reduces the possibility of diversity in possible interpretations and sets standards for journalism (Newman, 2017, p. 29). At the same time, it creates the possibility of generating unverified algorithmic news (Marconi & Siegman, 2013).

Digital technology systems operate with a logic of real instantaneity of their processing of information, logic which is imposed as a condition of mediation in this environment. Sensitive to this, journalists have sought to redefine their practices and ways of working by incorporating these principles of instantaneity and continuous flow to produce stories that bring about multiple and simultaneous experiences of time. The social temporality that journalism cultivates is not defined solely by computational logic, but it is reconfigured in a process with multiple mediations: institutional, individual and technological.

Automated systems change the timing of novelty in journalism, to the extent that the continuous flow makes it difficult to wait for the closure of an ongoing event. Deuze diagnoses a passage from "product journalism" to "process journalism": in this, "it is possible to publish pieces of history as it unfolds. In this way, you can keep history alive and give it continuity" (Deuze *apud* Becker, 2016, p. 206). Such a condition

enables a continuous rewriting of the news, its reformatting and dynamic edition, as well as the transit between media. This indicates an expansion of the temporal cut that the journalist applies to the fact, with additions, accumulations, alterations of points of view and developments of the news report.

4.4 Databases in Continuous Flow

The data environment in which digital journalism was configured indicates the intensity of the new logic of technological mediation. The storage, availability, access, processing and retrieval of data extrapolate the model of journalistic periodicity or even of a temporality located in the event. It is a dimension that operates in a continuous flow, driven by actions of data mining, its analysis and configuration of journalistic factualities for its public enunciation. A consultation by the Reuters Institute in 2017 with news organizations indicated that "almost two-thirds of publishers (62%) said that improving data capacity was their most important initiative for the year ahead" (Newman, 2017, p. 27).

At the same time, this demand increases the dependence of journalism on technological mediation. "One thing machines do better is create value from large amounts of data at high speed" (Anderson et al., 2013, p. 44). Such a scenario seems to indicate a "tight and symbiotic relationship" (2013, p. 49) between journalists, automated data systems and the multiplicity of user networks.

4.5. Journalistic Ecosystem and Multiple Temporalities

Anderson, Bell and Shirky (2013) propose, in the document *Post-Industrial Journalism: Adapting to the Present*, the adoption of the term "journalistic ecosysteM" to think of a configuration in which there is an interdependence and mutual influence between the main actors involved in the production and circulation of journalistic information. In the case of journalistic organizations, they would be affected by changes in other parts of the ecosystem. "There is now an institutional imperative to get good at developing partnerships, formal and informal, that have become possible in the new ecosystem" (Anderson et al., 2013, p. 76), which would mean broadening its approach with other organizations and activities in digital social networks. Inevitably, one of the objectives would be the reduction of operating costs, something that has been presented as imperative for journalistic organizations to survive in this ecosystem.

Technological mediation is one of the infrastructures of this new ecosystem, digitally structured. It is an environment governed by a new pattern of combinations of temporalities in journalism, which can be termed as "multiple temporalities". The multiple temporalities would present three relational forms: a) the time of production (relations between the events to be reported and journalists and their organizations); b) the time of reception (relations between readers/users and journalistic contents); c) the time of social interactions (multiple relationships and interactions that journalism can foster among social actors such as collaborations, sharing, commentary, conversations and debates, based on content and the journalistic environment).

There is a logic of instantaneousness and synchronism in the journalistic ecosystem and, on the other hand, a consequent reduction of sequential, linear and chronological processes (the value loss of journalistic periodicity is a mark of this new social logic). This technological environment incorporates readers as temporal mediators of this information ecosystem, because they are given a value of authenticity, of interest in clarifying the facts, in expressing opinions and in overcoming institutional mediations that acted as barriers in accessing events. Digital social networks create the sensation of an encounter of the audience with themselves, of a full horizontality and a value of journalistic truth based on immediacy (a non-mediation).

Thus, the journalistic product, reconfigured by logics of technological mediation, expands the presence of the "readers' time" (Gomis, 1991, p. 29). The digital social networks feed a kind of "social

present" that works on its own logic of "sedimentation of information in the conscience of the readers" (1991, p. 23). The Reuters Institute reports also point to a strong presence of social media as an environment where the public has access to the news (Newman, 2017, p. 7).

The time dedicated to exclusive reading or concentrated in a single media vehicle appears to be replaced by a multiple temporality characterized by simultaneous readings on screens of different devices. It is a reader's reaction to a constant flow of news offerings in an ecosystem in which the emission intervals contained in the idea of periodicity become scarce and the bombing of content is constant in the form of push notifications of journalistic content supposedly of interest of the reader (mainly via smartphones): "News organizations need to rethink their role in a world where people increasingly do not seek out media but are instead immersed in it" (Newman, 2017, p. 46). At a similar level are the reading recommendations made by users on digital social networks through the sharing of news (Anderson et al., 2013, p. 35).

The mere attempt to read journalistic content in news aggregators or digital social networks - the choice of most readers in a research conducted in 37 countries in 2018 (Newman et al., 2018, p. 13) – passes through an automated filter of preferences that directs certain information to the detriment of others. Automated tools can block undesirable journalistic content, as is already the case with advertising with web browsers that automatically block "overly intrusive advertising" (Newman, 2017, p. 26). New devices for fact-checking may become available to journalists and other users of journalistic content (Newman, 2017, p. 30) or even to "produce stories that come from structured data" (Anderson et al., 2013, p. 44-45).

The Reuters report of November 2018 points to a critique of the intensity of technological processes in the establishment of strategies of the great newspaper industry. Its author, Julie Posetti (2018, p. 7), ponders the risks of a "relentless, high-speed pursuit of technology-driven innovation", which can generate a "innovation fatigue". In her diagnosis, this excessive technological impulse could be counterbalanced by a greater involvement of organizations with their audiences and their real (not necessarily technological) demands.

For the purposes of this article, the report provides an indicator that technological mediation does not supplant other temporalities (individual or social), that operate in socio-symbolic or interactional logics only partially related to technological artifacts. Therefore, it helps us to signal a need for a qualified reading of the journalistic ecosystem and its multiple temporalities.

5. Final considerations

The proposal of journalistic temporality in the context of digital information and communication technologies has reached, in this article, the convergence between three analytical movements: a) the notions and characteristics of this temporality in the light of the new configurations of contemporary journalism; b) the recognition of new digital infrastructures (called here technological mediations) that give influence to the sociocultural interactions, among them the temporal ones; c) the analysis of technologically innovative experiences in contemporary digital journalism as problematizing examples to consider the relations between temporality and mediation.

It was sought to demonstrate that in the traditional configuration of the journalism, its temporality produced a cultural mark of a presentificated time, having the news as the key of meaning for an actuality that stated the no dislocation between the time of the journalistic content and the time of the social world. In addition, sociocultural experiences in the internet environment use the logic of technical connectivity to relate various temporal experiences. Journalism diminishes its force as a centralizing and normative institution of a social time and of a unifying temporal identity, and gives space to multiple temporalities, constructed and lived in different experiences, either in the events, in the product process or in the forms of reception, sharing and resignification of the contents. If the institutionalist vision loses

force in the reading of a social temporality, then the ecological vision present in the conception of a journalistic ecosystem reinforces the multidimensionality that is imposed on contemporary journalism, valuing an open environment for diversity and building bonds between increasingly differentiated actors in the social environment.

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