FRAMEWORK FOR BUILDING A DIGITAL VISUAL NARRATIVE IN JOURNALISM: Inter-American dialogue in knowledge production

Framework para a construção de uma narrativa digital visual no jornalismo: diálogo interamericano na produção do conhecimento

Marco para la construcción de una narrativa visual digital en el periodismo: diálogo interamericano en la producción del conocimiento

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ABSTRACT:

This paper proposes the development of a visual narrative for digital journalism. The study addresses the challenge of adapting traditional journalism to the complexity of the Web by employing theories from Emotional Design, Interface Design, and Design Thinking to propose a conceptual framework that guides this process. Through a qualitative methodology - including literature review and interviews with professionals and scholars in the United States and Brazil - the research offers a comparative and interdisciplinary perspective on the production of convergent content for multiple platforms and devices. The conceptual framework, which considers the news (data), the reader (user), and the platform (interface), promotes a user-centered approach to creating fluid and empathetic visual narratives.

Keywords: digital journalism; convergence; visual narrative.

RESUMO

Esta proposta de artigo orienta a constituição de uma narrativa visual para jornalismo digital. O estudo aborda o desafio de adaptar o jornalismo tradicional para a complexidade da Web, utilizando-se das teorias do Design Emocional, Design de Interface e Design Thinking para propor um framework conceitual que referencia esse processo. Por meio de uma metodologia qualitativa, que incluiu revisão de literatura e entrevistas com profissionais e acadêmicos nos Estados Unidos e no Brasil, a pesquisa oferece uma perspectiva comparada e interdisciplinar sobre a produção de conteúdo convergente para diversas plataformas e dispositivos. O framework conceitual, que considera a notícia (dados), o leitor (usuário) e a plataforma (interface), promove uma abordagem centrada no usuário para a criação de narrativas visuais fluídas e empáticas.

Palavras-chave: jornalismo digital, convergência, narrativa visual.

RESUMEN

Esta propuesta de artículo orienta la construcción de una narrativa visual para el periodismo digital. El estudio aborda el desafío de adaptar el periodismo tradicional a la complejidad de la Web, utilizando las teorías del Diseño Emocional, Diseño de Interfaz y Design Thinking para proponer un marco conceptual que oriente dicho proceso. A través de una metodología cualitativa, que incluyó revisión bibliográfica y entrevistas con profesionales y académicos en Estados Unidos y Brasil, la investigación ofrece una perspectiva comparada e interdisciplinaria sobre la producción de contenido convergente para diversas plataformas y dispositivos. El marco conceptual, que considera la noticia (datos), el lector (usuario) y la plataforma (interfaz), promueve un enfoque centrado en el usuario para la creación de narrativas visuales fluidas y empáticas.

Palabras clave: periodismo digital, convergencia, narrativa visual.

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Introduction

The contemporary media landscape is undergoing profound transformations driven by digital technologies, demanding significant changes in journalistic practices. The search for parameters that guide the construction of visual narratives aligns with the central theme of the 10th Brazil–US Colloquium on Communication: "Producing Knowledge in the Field of Communication Studies: Dialogue and Connections between the Americas." This research not only diagnoses the challenges involved in the transition from print to digital journalism but also proposes innovative solutions, establishing a dialogue between Brazilian and North American contexts.

One of the main dilemmas of digital journalism lies in the way stories are told. The contemporary emphasis falls on form and narrative construction rather than solely on information gathering. The proliferation of multiple devices and formats requires the development of more fluid and convergent visual narratives that can adapt to users' diverse needs and preferences. In this sense, the constitution of a conceptual framework that supports the process of constructing visual narratives in digital journalism as a mode of knowledge production becomes essential.

This study is grounded in Emotional Design theory (Norman, 2008), which examines the different dimensions of users cognitive processing - visceral, behavioral, and reflective - that influence information reception and preferences for specific formats. Interface Design (Padovani & Moura, 2008) is also fundamental for adapting content to platforms, conceptualizing the interface as a tool for organizing and communicating data. With the proliferation of mobile devices, the need to adapt narratives to various formats becomes evident. If informing means giving shape to data, then the interface is a structure that is simultaneously present and absent (Lupton & Phillips, 2008, p. 101). Finally, Design Thinking (Brown, 2010) offers a collaborative, user-centered methodology for addressing complex problems in narrative production - from inspiration to experimentation.

For over a decade, news organizations have been investing in innovative narrative formats such as longform journalism and interactive storytelling, which integrate text, photography, video, and graphics in a multimedia structure. Notable examples include NSA Files: Decoded[1] (The Guardian) and Snow Fall[2] (The New York Times). The convergence of languages in digital journalism has generated hybrid, non-linear narrative constructions that allow readers to follow countless interactive paths, transforming journalistic content into platform-independent experiences.

To foster dialogue and connections between the Americas, this study analyzed practices in leading newspapers in both the United States and Brazil, including The New York Times, The Guardian, Folha de S. Paulo, and The Boston Globe. Relevant professionals were interviewed in these organizations, such as Sérgio Peçanha (Graphics Editor, The New York Times, USA), Kainaz Amaria (Visual Editor, Vox Media, USA), Tonia Cowan (Design Editor, The Boston Globe, USA), and Alan Taylor (Senior Photography Editor, The Atlantic, USA), creator of the influential blog The Big Picture[3]. These interviews served as a cornerstone for contextualization and data validation. In addition, interviews were conducted with scholars from Emerson College (Boston, USA): Janet Kolodzy (professor and reference in convergence journalism), Catherine D'Ignazio (professor specializing in data visualization and storytelling), and Vincent Raynault (assistant professor in communication studies).

The interviews with professionals and academics in the United States, combined with the analysis of news organizations in both countries, guided the research and revealed the growing interdisciplinarity of newsrooms, where design and engineering professionals are increasingly integrated into journalistic teams to structure data and construct visual narratives effectively.

Research Problem

The mastery of codes- whether natural, social, relational, or linguistic - has always been a determining factor in human knowledge acquisition. Language, in its multiple forms and media, remains the primary means through which individuals' access and interpret information. With technological advances, new media have emerged that enable differentiated forms of narrative. In print journalism, photography and illustration have historically complemented the text, which has served as the central mediating language. However, with the development of electronic media, audiovisual elements such as video have expanded expressive and communicational possibilities.

Managers of news organizations now recognize that adopting new narrative formats is essential to the survival of digital journalism, as is acknowledging the influence of social media. Aware of the irreversible transition

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1 Available at: <https://www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded>, accessed on June 18, 2025.

2 Available at: <https://www.nytimes.com/projects/2012/snow-fall/index.html#/?part=tunnel-creek>, accessed on June 18, 2025.

3 Available at: < https://www.bostonglobe.com/multimedia/photo/big-picture/>, accessed on June 18, 2025.

from print to digital, media executives are devising innovative strategies to expand online audiences and increase news traffic. Nonetheless, initiatives aimed at personalizing content according to users' specific needs and cultural profiles remain scarce.

Technological development is intrinsically linked to how contemporary subjects construct their realities. As noted by Aguiar et al. (2009, p. 57), the external world influences individuals' cognitive experiences, who in turn objectify their subjectivity. In virtual environments, subjects reaffirm their individuality by choosing among multiple possible narratives constructed on the web. Thus, the spatial limitations imposed by print are replaced by the malleability of digital networks, marked by interconnected threads and nodes (Castells, 2003, p. 7).

In the print medium, text functioned as the principal language mediating between reality and the subject; in contemporary contexts, more fluid languages have emerged to represent users more effectively. The evolution of individuals relationships within digital environments can be understood through Vygotsky's (1896–1934) notions of intrapersonal and interpersonal dimensions. While traditional media limited user access to specific linguistic systems, the internet allows interaction with a diversified set of languages and actors, enabling appropriation of multiple narratives.

Vygotsky (1991, p. 41) defines intrapersonal and interpersonal dimensions as constitutive aspects of human development. The intrapersonal dimension operates within the individual sphere, whereas the interpersonal occurs between subjects. Over time, social interactions become internalized, transforming the interpersonal into the intrapersonal. This dynamic movement from the individual to the collective underscore's language as a fundamental instrument for accessing and constructing shared knowledge. For Vygotsky, thought comprises several processes - memory, cognition, affect - yet cannot be reduced to any of them individually (Aguiar et al., 2009, p. 55).

This dialectical interplay between the constitutive dimensions of the subject strengthens engagement with the external world and reinforces the subjective self, enabling the construction of convergent and innovative narratives online. An emblematic example is The Big Picture - a photojournalistic blog launched by The Boston Globe in 2008 by programmer Alan Taylor - which revolutionized visual storytelling on the web by prioritizing large-format photographic coverage through multiple perspectives (Taylor, 2008).

Upon launch, the blog reached 1.5 million page views in just 20 days - a remarkable figure for the time. Taylor recognized the centrality of imagery in the digital environment, where the absence of print constraints allowed photography to assume a primary narrative role. In 2011, the project, rebranded as In Focus, was incorporated into The Atlantic[4] (Taylor, 2011). For Taylor[5], beyond constructing visually compelling narratives, the challenge lies in developing formats adaptable to diverse devices - formats that make sense to users and remain consistent with the story being told.

The coexistence and articulation of distinct languages require interdisciplinary planning and technological investment. As Professor Raul Reis (2013) notes, journalism will continue to benefit from innovation insofar as it incorporates, refines, and disseminates new technologies - a condition essential for the medium's survival.

Santaella (2013) anticipates that the evolution toward Web 3.0 will bring increasingly complex features, such as semantic and ontological metadata. In this scenario, hardware will become imperceptible, and commands will be executed through gestures integrating technology with human corporeality and cognition (Santaella, 2013, pp. 40–41).

Given these transformations, where traditional models prove inadequate for digital journalism, analyzing emergent parameters becomes imperative. From this analysis arises the need for a conceptual framework to support visual narrative construction in digital journalism, grounded in applied communication theories (Wolf, 2001) and behavioral analyses of Emotional Design (Norman, 2008), Interface Design (Padovani & Moura, 2008), and Design Thinking (Brown, 2010).

Format thus ceases to be the final production stage: designers, now integrated into journalistic teams from planning to narrative development, subvert traditional hierarchies. As Gobé (2007) highlights, Emotional Design connects the user to the story through graphic language.

A paradigmatic case of designer integration into reporting occurred during The New York Times coverage of the 2016 U.S. presidential conventions. In addition to the reporter and photographer, the team included a Graphics Desk journalist responsible for data collection and infographic design. According to editor Sérgio Peçanha[6], visual reporters' data sometimes even redefine the story's focus.

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4 *The Atlantic* is a literary/cultural magazine founded in Boston in 1857 by a group of writers that included Ralph Waldo Emerson, Henry Wadsworth Longfellow, Oliver Wendell Holmes, Sr., and James Russell Lowell. Today the magazine is based in Washington, DC.

5 In an interview granted to the researcher, during the investigation period at Emerson College, Boston, United States, on August 7, 2017, financed by the sandwich scholarship granted by the Coordination for the Improvement of Higher Education Personnel – Capes.

6 In August 2016, in an interview granted to this researcher, the Graphics editor of The New York Times (2008-2019). Currently, Sérgio Peçanha works as the Opinion graphics editor and visual columnist at The Washington Post, in Washington, D.C. He is responsible for developing graphics and interactive stories for the Opinion section.

These dynamics illustrate the restructuring processes underway in major newsrooms adapting to the digital environment. Increasingly, communication on the internet operates through cyclical feedback rather than unidirectional transmission - symbolized by the Ouroboros[7], representing self-sustaining evolution. Consequently, communication formats must meet users' expectations, ensuring personalization and interactivity.

Figure 1: Ouroboros (or oroboro, or uróboro)

Source: Author's database. Reproduction from the Dictionary of Symbols.

To address these demands, journalism has approached adjacent fields such as design and advertising, appropriating their theoretical concepts. Only by incorporating data on users' emotional and behavioral profiles can media professionals select suitable tools and resources. Digital convergence thus fosters a fusion of languages, establishing a more visual and fluid narrative logic. The way users access information is directly linked to the emotional resonance of the narrative provided. As Norman (2008, p. 39) observes, design experiences often generate conflicting emotional responses - what pleases one user may displease another - mirroring the diversity of interpretations on the web.

According to Maturana (2009, p. 52), every rational system has an emotional foundation, yet society tends to grant rationality a transcendent validity and emotion an arbitrary character. He argues that emotion, not reason, propels human action (Maturana, 2009, p. 25). It is through language that reflective human thought emerges, enabling affective bonds with narratives regardless of format. Rationality, therefore, operates within emotional coherence, as human beings act within the interplay of emotion and reason. This relationship determines how users interact with multiple languages composing digital journalistic narratives.

Journalism increasingly intersects with other fields - such as Design, Marketing, and Advertising - when it is guided by the behavioral characteristics of the audience in the process of shaping information. Within the field of Design, user profile analysis can be classified into three dimensions associated with levels of cerebral processing (NORMAN, 2004, p. 26):

- **Visceral:** the fastest level, responsible for instant judgments (good or bad, safe or dangerous), which are sent to the motor system to alert the brain. It constitutes the principle of affective processing.

- **Behavioral:** encompasses most human behavior, whose actions can be refined or inhibited by the reflective layer, which in turn can act upon the visceral layer.

- **Reflective:** does not have direct access to sensory information nor directly control behavior; rather, it observes and reflects on the behavioral level in order to influence it.

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7 (Figure 1), which represents an evolutionary cycle closed upon itself.

These three levels interact continuously, shaping users' decisions when choosing narrative formats and when accessing information. Actions initiated at the lower levels - visceral and behavioral - are categorized as **"bottom-up"**, while those occurring at the reflective level are classified as **"top-down"** (NORMAN, 2008, p. 45). These terms reflect the functioning of cerebral structures, although the three levels can operate simultaneously at distinct moments. The lower layers, related to the visceral level, interpret sensory information são from the body and are driven primarily by perception (NORMAN, 2004).

Figure 2: Relationship between the visceral level and the protagonist languages
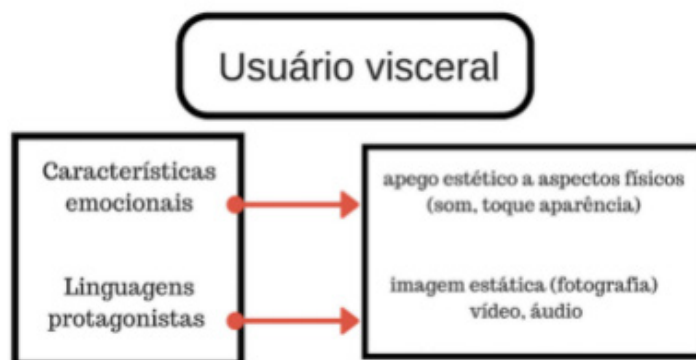
Source: Developed by the author.

The **behavioral level** is associated with the effective performance of specialized tasks and the use of tools that enable functional performance, emphasizing usability and efficacy.

Figure 3: Characteristics and languages associated with the behavioral user

Source: Developed by the author.

The **"top-down" behavior** is related to the reflective level, which is characterized by critical and evaluative thought. This level does not have direct access to sensory information nor direct control over behavior; instead, it observes and interprets the behavioral level to exert influence upon it (NORMAN, 2008, p. 42).

Figure 4: Characteristics and languages associated with the reflective user

Source: Developed by the author.

With the advancement of mobile devices, adapting narratives to multiple formats has become a fundamental priority. In traditional media, each medium presented a specific format; however, with digital convergence, narrative languages now merge to form fluid, multimodal content.

The **interface**, understood as a structural framework, is simultaneously present and absent in the user's experience (LUPTON; PHILLIPS, 2008, p. 101). It serves as the tool that enables communication by transforming dispersed data into interpretable information (BONSIEPE, 1997). The communicative process becomes effective when data is organized and structured through the interface.

In the relationship between user and interface, the latter is configured as the space where the interaction between body, tool, and information occurs, revealing the communicative content and enabling meaning construction (BONSIEPE, 1997, p. 12).

The Framework

The proposed conceptual framework is grounded in the Design Thinking methodology, articulated with the approaches of Emotional Design and Interface Design, as an instrument for guiding the constitution of visual narratives in Digital Journalism. Design Thinking, conceived as a user-centered methodology for addressing complex problems through empathy, collaboration, and experimentation, is structured into three core stages, inspiration, ideation, and experimentation. These stages enable the reconfiguration of traditional roles within the journalistic process.

Accordingly, the framework establishes three principal pillars: the news (as data), the reader (as user), and the platform (as interface). It proposes a model in which the journalistic narrative emerges from the dynamic interrelationship among these elements, within a fluid and convergent environment. The application of this framework takes into account the audience's emotional behavior as a determining variable in the selection of digital narrative languages. Based on the emotional levels defined by Norman (2008) and Gobé (2007), the visual narrative is structured to maximize information reception and comprehension, aligning content, form, and user experience.

This proposal contributes to the reorganization of editorial processes historically constrained by traditional media logics, while offering a methodology adaptable to the technological and cultural transformations that characterize contemporary Digital Journalism. Rooted in Design principles, the framework enables the production of multimodal content that is emotionally attuned to the reader and consistent with the specific affordances of each platform.

Figure 5: Proposed conceptual framework for visual narrative
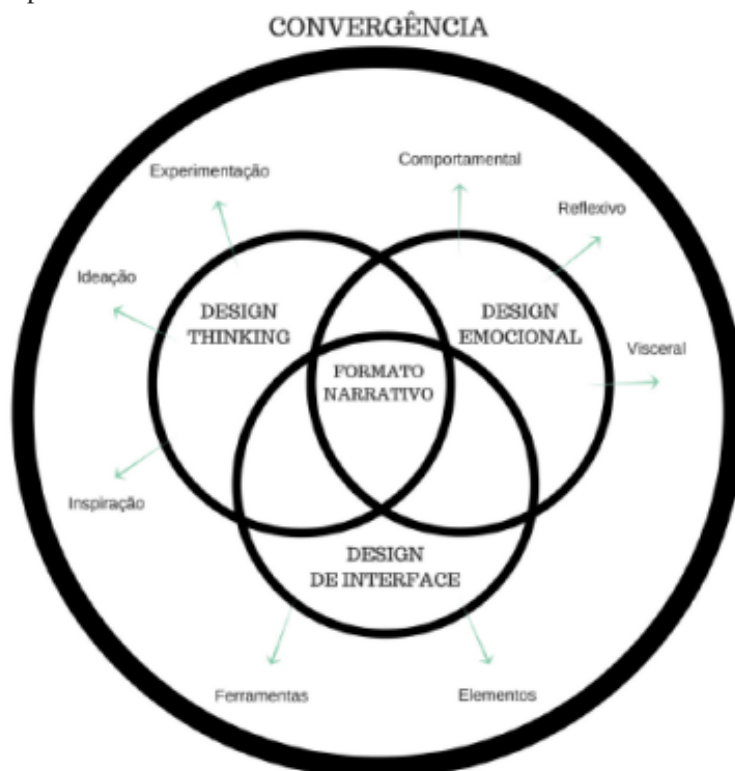
Source: Elaborated by the author (2025).

Journalism, by incorporating principles of Design, Marketing, and Advertising, begins to consider the emotional and behavioral dimensions of the user in narrative construction, particularly in the digital context. Drawing on Norman's (2004) typology, Design analyzes the user's profile through three levels of cognitive processing - visceral, behavioral, and reflective - which directly influence the reception and experience of information. Within this scenario, the interface acts as an omnipresent mediator between content and user, shaping how information is perceived and understood.

Following the analogy proposed by filmmaker Wim Wenders, who associates glasses with the act of framing the world, the interface can also be understood as a sensory and cognitive frame that structures the narrative experience. Therefore, proposing a narrative format in Digital Journalism entails the deliberate organization of the elements that give form to data, adapting them to the perceptual and technical requirements of the interface. As Bonsiepe (1997) argues, this structure reveals the instrumental nature of the interface as a tool for accessing knowledge, capable of transforming dispersed signals into interpretable information.

In an environment characterized by multiple platforms and devices, narrative construction must take into account both the limits and potentials of the visual field and human perception, as problematized by Merleau-Ponty (1994). The act of seeing and understanding is always mediated by devices, interfaces, and emotional contexts that shape the form and meaning of information.

Conclusion

Digital transformation has profoundly affected Journalism, reshaping the processes of information production, distribution, and consumption. This context has stimulated the convergence of languages and the emergence of new narrative formats in which the user plays an active role in selecting, circulating, and interpreting news. The decline of the transmission model and the rise of an interactive, user-oriented logic have directly impacted how information circulates, particularly through practices such as social media sharing.

Given these shifts, it becomes imperative for Journalism to restructure itself, appropriating diverse platforms and reformulating its business models, narrative formats, and production and distribution processes. The absence of a consolidated narrative model for digital media has led journalistic organizations to experiment with various formats, seeking adaptation to platform specificities and user behavior. Although visual resources - such as photographs, videos, and infographics - have gained prominence, written text remains a central pillar of journalistic communication. Visual elements do not replace text; rather, they complement it, composing hybrid narratives in an environment defined by fluidity and the absence of spatial boundaries.

The central contemporary challenge lies in producing convergent content capable of maintaining journalistic quality across different devices and platforms. In this context, the present study proposes a conceptual framework for constructing visual narratives in Digital Journalism, grounded in the approaches of Emotional Design, Interface Design, and Design Thinking. While digital networks generate an abundance of unstructured data, Journalism requires organized and intelligible forms to ensure communicative efficacy (PERASSI; SANTOS, 2010).

This research departs from the premise that form - and not merely content - is essential to the mediation of knowledge, as emphasized by Knowledge Media theories. The development of the framework was guided by a systematic literature review, an analysis of innovative narrative formats such as longform and storytelling, and interviews with professionals in the field. Based on reports from outlets such as The New York Times, Folha de S. Paulo, and The Boston Globe, the constitutive elements of digital journalistic narratives were identified: static images, moving images, written text, verbal language (audio), and hybrid languages such as infographics, audiovisual resources, and hypertexts.

The classification of these elements was crucial for establishing correlations with users' emotional profiles, acknowledging that distinct emotional levels influence the selection of specific narrative formats. In this sense, Design Thinking offers methods for addressing complex problems and reorganizing roles within the journalistic process.

The framework developed in this study underscores the need for collaboration among journalists, designers, and engineers - particularly in an era of data overload. By organizing and giving shape to data - understood here as any visual, textual, or interactive stimulus composing the narrative - Journalism fulfills its mediating function (MOTTA, 2005). The proposed framework therefore articulates three dimensions: (1) the processes of Design Thinking (inspiration, ideation, and experimentation), (2) the understanding of users' emotional behavior (Emotional Design), and (3) the functionality of narrative elements according to the platform used (Interface Design).

It constitutes a cyclical and feedback-oriented process, in which the user not only consumes but also influences the final form of the narrative. In conclusion, the theoretical model advanced here provides a methodological

foundation for guiding the construction of visual narratives in Digital Journalism. By integrating Design Thinking, Emotional Design, and Interface Design, it contributes to the development of more effective, meaningful, and contextually adaptive content within a dynamic, hybrid, and user-centered media ecosystem.

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