

RESEARCH

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**COVID-19 AND INSTAGRAM: AN ANALYSIS OF IBERO-AMERICAN PUBLICATIONS**

**COVID-19 E INSTAGRAM: UMA ANÁLISE DAS PUBLICAÇÕES IBERO-AMERICANAS**

  **Denis Renó<sup>1</sup>**: Universidad Estadual Paulista. Brazil.  
[denis.reno@unesp.br](mailto:denis.reno@unesp.br)

  **Xabier Martínez-Rolán<sup>2</sup>**: Universidad de Vigo. Spain.  
[xabier.rolan@uvigo.es](mailto:xabier.rolan@uvigo.es)

  **Teresa Piñeiro-Otero<sup>3</sup>**: Universidad de la Coruña. Spain.  
[teresa.pineiro@udc.es](mailto:teresa.pineiro@udc.es)

  **Andrea Versuti<sup>4</sup>**: Universidad de Brasília. Brasil.  
[andrea.versuti@gmail.com](mailto:andrea.versuti@gmail.com)

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<sup>1</sup> **Denis Renó**: Journalist and documentary maker, Ph.D. in Social Communication from the Universidad Metodista de São Paulo (Brazil). He is a professor in the Journalism Program of the Faculty of Architecture, Arts, and Communication of the Universidad Estadual Paulista - UNESP (Brazil).

[denis.reno@unesp.br](mailto:denis.reno@unesp.br)

<sup>2</sup> **Xabier Martínez-Rolán**: Degree in Audiovisual Communication and Ph.D. in Communication from the Universidade de Vigo. Professor at the Department of Advertising and Audiovisual Communication at the Universidade de Vigo.

[xabier.rolan@uvigo.es](mailto:xabier.rolan@uvigo.es)

<sup>3</sup> **Teresa Piñeiro-Otero**: Graduated in Advertising and Public Relations and Ph.D. in Communication from the Universidade de Vigo. She is a professor at the Department of Sociology and Communication Sciences at the Universidade da Coruña.

[teresa.pineiro@udc.es](mailto:teresa.pineiro@udc.es)

<sup>4</sup> **Andrea Versuti**: Ph.D. in Education, Science, and Technology by UNICAMP. Professor in the area of Education, Technologies, and Communication at the Faculty of Education at the Universidade de Brasília (UnB). Member of the Education, Philosophy, and Image Research Group (GEFI).

[andrea.versuti@gmail.com](mailto:andrea.versuti@gmail.com)

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## **ABSTRACT**

Understanding the role of communication promoted by Ibero-American society during the Coronavirus pandemic is fundamental to the construction of knowledge about the disease. In this scenario, Instagram occupies a privileged place, as it carries a diversity of possible languages. In addition, Instagram's relevance in the social networking landscape is growing. This article presents, from a study developed through big data analysis procedures, the first result of several that make up an international investigation on the subject. At the stage of the project, the quantitative volume of publications, the average publication per user, and the participation of the various languages used in this analysis group were verified. It is expected that further investigations can be developed from the results presented here, especially due to the urgency of knowing the role of communication in the pandemic scenario in which we live.

**KEYWORDS:** Communication - Photography - Instagram - Big Data - COVID-19 - coronavirus - pandemic.

## **RESUMO**

Compreender o papel da comunicação promovida pela sociedade ibero-americana durante a pandemia do Coronavírus é algo fundamental para a construção do conhecimento sobre a doença. Neste cenário, o Instagram ocupa um lugar privilegiado, pois carrega uma diversidade de linguagens possíveis. Ademais, a relevância do Instagram no cenário das redes sociais é crescente. Este artigo apresenta, a partir de um estudo desenvolvido através de procedimentos de análise do Big Data, um primeiro resultado de vários que compõem uma investigação internacional sobre a temática. Na etapa do projeto, foram constatadas o volume quantitativo das publicações, a média de publicação por utilizador e as participações das diversas linguagens empregadas neste grupo de análise. Espera-se que novas investigações possam ser desenvolvidos a partir dos resultados aqui apresentados, especialmente pela urgência de se conhecer o papel da comunicação no cenário de pandemia no qual vivemos.

**PALABRAS CLAVE:** Comunicação – Fotografia – Instagram – Big Data – COVID-19 – coronavirus – panedemia.

## **COVID-19 E INSTAGRAM: UN ANÁLISIS DE PUBLICACIONES IBEROAMERICANAS**

### **RESUMEN**

Comprender el papel de la comunicación promovido por la sociedad iberoamericana durante la pandemia del Coronavirus es fundamental para construir conocimiento sobre la enfermedad. En este escenario, Instagram ocupa un lugar privilegiado, ya que lleva una diversidad de lenguajes posibles. Además, la relevancia de Instagram en el panorama de las redes sociales está creciendo. Este artículo presenta, a partir de un estudio desarrollado mediante procedimientos de análisis de Big Data, el primer resultado de varios que conforman una investigación internacional sobre el tema. En la etapa de proyecto se verificó el volumen cuantitativo de publicaciones, la publicación promedio por usuario y la participación de los diferentes idiomas utilizados en este grupo de análisis. Se espera que se puedan desarrollar más investigaciones a partir de los resultados aquí presentados, sobre todo por la urgencia de conocer el papel de la comunicación en el escenario pandémico en el que vivimos.

**PALABRAS CLAVE:** Comunicación - Fotografía - Instagram - Big Data - COVID-19 - coronavirus - panedemia.

Translation by **Paula González** (Universidad Católica Andrés Bello, Venezuela)

### **1. INTRODUCTION**

Contemporary society experiences significant transformations in various sectors, especially with the arrival of digital technologies. Citizens, immersed in liquid behaviors (Bauman, 2001) and connected by networks of relationships (Castells, 2000), configure an increasingly imagistic scenario, as McLuhan (1964) expected when analyzing television at that time. However, with the appearance of the internet and mobile devices, the use of the image as a communication language between people (P2P) is promoted and social networks begin to value this type of resource even more. In this aspect, the narrative imaginary experiences processes of expressive change since the advent of digital technology, becoming an important protagonist in communication processes in participatory spaces such as Instagram.

With the pandemic caused by COVID-19, Instagram is experiencing a growing role among social networks. According to the Digital 2021 global roundup in January 2021, it was ranked as the fifth most popular social platform, with a global community of 1.221 million people (WeAreSocial & Hootsuite, 2021).

Through Instagram, users have played a prominent role in expressing their feelings, wishes, opinions, and afflictions about the pandemic. Its visual component facilitated its role in the construction of pandemic narratives, enabling contact and

connection of users, besides its emotional (Cho et al., 2018) and motivational effect (Kamel, Giustini & Wheeler, 2016; Chung et al. 2017).

From a social perspective, Instagram allows the use of resources to

[...] access official information at the time of entertainment; the comparison of information transmitted in different profiles; the validation of information from the media; share collective feelings through images and videos; and a semi-intimate bond with influencer health professionals (Pinto et al., 2020, p. 45)

Although Igartua, Ortega Mohedano, and Arcila Calderón (2020) place Instagram within social networks with a greater visual component, with an orientation to capture likes rather than information, the combination of entertainment with informative and even pedagogical content creates a favorable space for health communication almost on the same level as other networks (García & Eiró-Gomes, 2020). Thus, several studies analyzed the role of Instagram for health communication (Kamel Boulous, Giustini & Wheeler, 2016; Fung et al., 2020) in the setting of public health crises (Setzler et al., 2015; Setzler et al., 2017; Guidy et al., 2017; Fung et al., 2017, or Guidy et al. 2019).

However, in the same scenario in which the image takes center stage, we find the disinformation spread by the same relationship networks, something that at a time of pandemic becomes even less desirable. Along with the health crisis, public institutions and health organizations had to face the infodemic to contain the virus (Aleixandre-Benavent, Castelló-Cogollos, & Valderrama-Zurián, 2020), while the fact-checkers phenomenon grew in recent years in parallel with misinformation (Dafonte-Gómez et al. 2019).

In fact, in pre-COVID situations, this growth of fake news greatly hinders society's efforts to obtain information (Casero-Ripollés, 2020), and even the efforts of governments to improve and expand their communication about COVID-19 - in particular, in the case of Spain and its press conferences during the confinement, analyzed by Castillo-Esparcia et al. (2020), public opinion follows its own information standards and how it was shared on all social networks. The same cannot be said in the case of Brazil, as the Federal Government has remained totally outside the line of science, including the spread of fake news about treatments that have been shown to be ineffective against COVID-19 and also about the importance of the use of masks and the practice of social distancing. This generated a high death toll, which at the time of writing this article was around 560,000 victims.

This research presents, through this article, the quantitative results observed in the Ibero-American publications on Instagram registered at the beginning of the pandemic. For this, publications in Portuguese and Spanish were collected between March 13<sup>th</sup> and May 20<sup>th</sup>, 2020 that contained the hashtags #covid19 and #coronavirus, totaling 103,775 publications made by 13,051 users. The selection of hashtags as an object of study places us in the line of works such as those by Wagner, Marcon, & Caulfiel (2020) about the hashtag #immunebooster. This was a trend in this social network, or Nikmam et al. (2021), who analyzed the social

conversation articulated around #COVID-19 (Caldevilla-Domínguez et al., 2021), even during quarantine (Lucibello et al. 2021; Barrientos-Báez et al. 2021). In social networks and COVID, the works of Orduña-Malea et al. (2020) related to videos also stand out.

Based on the data visualization functions provided by the Graphext platform, we quantitatively and qualitatively observe these publications and present these results so that we can, from this first moment of observation, understand the role of existing relationship networks on Instagram in the first months of the pandemic, specifically in Ibero-American countries. With the conclusion of this article, it is expected to offer spaces for new studies related to the subject, as well as the contemplation of conditions to find solutions against misinformation.

### **1.1. Social networks in digital spaces**

In today's society, cultural and technological changes are increasingly present and incisive in the daily life of subjects. Different forms of communication are greatly affected by the changes resulting from the many digital communication and information technologies available.

The space in which this occurs is called cyberspace, a space for new media outlets that come from the Internet. The term cyberspace includes not only the infrastructure of technological materials but also the contents and subjects that transit and are immersed in it, respectively. Faced with this digital context, new ways of being, feeling, relating, and knowing become accessible to subjects, thus giving rise to cyberculture (or digital culture) in which subjects interact and share content through different media, instantly, collaboratively, and in a participatory way. According to Levy (2010, p. 17), cyberculture is "the set of (material and intellectual) techniques, practices, attitudes, ways of thinking, and values that develop along with the growth of cyberspace".

In cyberspace, we do everything that people do when they meet, but we do it with words, images, videos, and on the screens of a computer's interfaces. From it, we can think that the signs of a medium create, generate, construct other signs in different ways, thus demonstrating the possibility of unlimited semiosis. Worldwide, billions of people belong to some digital social network in which their identities are mixed and interact electronically, regardless of time and place (Santaella, 2013, p. 123). It is also important to say that in this context, the social markers of difference: socio-economic and cultural condition, race, gender, and generation are present and effectively manifested in the context of the relationships established by the subjects.

Digital culture contemplates the creation/production of content in media supports and the intensification of the interconnection that may exist between these contents. Different media make people connect through different platforms that are grouped into a single device, which allows us to speak of convergence. This convergence is not only built on the evolution of the media, nor on those that present an

unprecedented use, but above all it brings a significant change in the paradigms of social, cultural, and consumer relations, establishing an expanded form of integrating and interacting with the different content and information available.

Convergence is characterized as a cultural transformation that occurs as the need to seek information and connectivity to content arises.

For Jenkins (2009, p. 27), convergence is:

Content flows across multiple media supports, the cooperation between multiple media markets, and the migratory behavior of media audiences, who go almost anywhere in search of the entertainment experiences they want. [...] it manages to define technological, market, cultural, and social transformations [...]

The interactions present in the digital context occur only through the technological apparatus, mainly through the ways in which subjects appropriate technologies to produce culture. In digital culture, the subject is at the center of the process, because the contents converge on different media platforms and are also present in these different spaces. The medium is important since it is the support that contributed to the changes in the actions of the subjects immersed in it, but without a change in the perception of the subject, it would not be possible to develop interactions in cyberspace.

The most important thing, therefore, is to understand how the relationship between cultural subjects and these media is constructed and translated. One of the most obvious processes is the virtualization of personal identity. With it, come the virtual profiles that free the entity from the bonds of space-time:

Virtualization is not a derealization (the transformation of an entity into a set of possibles), but a mutation of identity, a displacement of the ontological center of gravity of the object under consideration: instead of being defined mainly by its actuality (a 'solution'), the entity begins to find its essential consistency in a problematic field. (Lévy, 2011, 17-18)

Thus, we understand that convergence is a process that allows fluidity between media and languages, enabling access to different information and content that can contribute to the structuring of knowledge that breaks the barrier defined for each medium and begins to complement each other favoring the subjects. Search for information from different sources, integrating.

According to Santaella (2005), with digital convergence, content transmutations occur in innumerable virtual versions that emerge as the receiver is placed in the position of co-author. Thus, there is also a qualitative sum of the matrices of language and thought, whether sound, visual, and/or verbal, which give new meanings to productions.



Each new language brings with it new ways of thinking, acting, and feeling. Arising from the phenomenological convergence of all languages, hypermedia means an unprecedented synthesis of sound, visual, and verbal language and of thought matrices with all their possible developments and mixtures (Santaella, 2005, p. 392).

From this context, we understand that with the intensification of connectivity between subjects made possible by digital convergence, new ways emerge for the construction of knowledge to become effective. These new modes began to be guided by the exponential increase of some substantive characteristics of the information available in digital media such as; the multiplicity of languages in which they are constituted, the diversity of sources, the volume, quantity, scope, range and scale, the plurality of opinions, and the worldwide phenomenon of political/ideological polarization, besides the constant confrontation of misinformation.

This complex scenario has an incisive effect on some social spheres; such as the job world, political management, investment in science and technology, the environmental agenda, consumption, communication, progressive agendas in defense of fundamental social rights, interpersonal relationships, and also education. Finally, our entire culture is in a constant process of (qualitative and quantitative) change with the increasingly intense and extensive participation of digital media in social reality.

The digital convergence movement enhances the actions that can be carried out in a network, something that for almost two decades deserves special attention in mediated environments is the connection between people, popularly known as the network. Previously defined as a social gathering or mobilization around a common topic, the concept of the network began to receive new interpretations with the arrival of the Internet. The Spanish sociologist Manuel Castells was one of the pioneers in the interpretation of this new social configuration that began to rely on mediated environments and, above all, on the importance of the citizen in the processes of network construction.

In his work "*La Sociedad en Red*", Castells (2000) proposes the importance of Being in the information society and communication processes based on the identity in networks. According to Castells (2000, 57-58), "by identity, I understand the process by which a social actor recognizes and constructs meanings mainly from a certain cultural attribute or set of attributes to the point of excluding a broader reference to other social structures".

It is important to emphasize that Castells does not consider the concept of the network since technology scholars consider the same word. Although the philosophy is the same -computer networks or social networks are interconnected by various nodes, either neural, of process, or physical connection-, the network proposed by Manuel Castells goes beyond this simplification. For the author, a social network is based on other characteristics, including immaterial ones, such as mutual interests and objectives. This social network promotes collective changes, voluntarily or involuntarily.

In more current work, Castells (2013) presents the concept of a social network with specific purposes of mobilization and collective change. According to the author, "in fact, social change implies individual and/or collective action that is, in its essence, emotionally motivated, like all human behavior" (Castells, 2013, p.126).

On this subject, the author also demystifies the need for technology for the formation and existence of networks. For Castells, technology collaborates and empowers, but the fundamental thing is to share interests, needs, and solutions.

They are networked in multiple ways. The use of communication networks over the Internet and mobile phones is essential, but the way to connect to a network is multimodal. It includes online and offline social networks, as well as pre-existing networks and others formed during the actions of the movement. Networks are formed within the movement, with other movements around the world, with the Internet blogosphere, with the media, and with society in general. The technologies that allow the constitution of networks are significant in providing the platform for this continued practice, which tends to expand, evolving with the change in the format of the movement. (Castells, 2013, p.128).

When discussing networking, Manuel Castells values the language used to share collective ideas. Among the most prominent, the image occupies a privileged place in the process. According to Castells (2013, p.130), "the power of images is sovereign. YouTube was probably one of the most powerful mobilization tools in the early stages of the movement. "Indeed, for the author, the image is the protagonist of a greater power of mobilization and networking, which can be observed from the quantitative results presented by this research.

However, when thinking about networks, in the context of this research, we must consider the territorial field. However, as proposed by Marc Augé (1994), in digital environments we rely on non-place. From this idea, the theorist develops an anthropological reading of contemporary society as a network of people who inhabit the non-place since it does not depend on the physical condition to connect. For the author, "The non-place is the space of others without the presence of others, the space constituted in a spectacle" (Augé, 1994, p.167). The author considers, in another text, that the non-place is the common space of what he defines as super-modernity. And he explains:

But, insofar as the non-place is the negative of the place, it is necessary to admit that the development of spaces for circulation, communication, and consumption is a pertinent empirical feature of our contemporaneity, that these spaces are less symbolic than codified, ensuring in them all the signage and a whole set of specific messages (through monitors, synthetic voices) in the circulation of passers-by and passengers (Augé, 2006, p. 115).

However, Augé's idea is not supreme. With another look, the Portuguese Boaventura Sousa Santos (2005) defends an intermediate position between geographical and virtual territory. To the author:



The present time seems to us dominated by a dialectical movement in which the processes of globalization occur in parallel to those of localization. (...) social relations, in general, seem to be increasingly de-territorialized (...). But on the other hand, and in apparent contradiction with this trend, new regional, national, and local identities are emerging, built around a new protagonism of fundamental rights. These localisms refer to real or imaginary territories, as well as ways of life and sociability based on face-to-face relationships, proximity, and interactivity. (Santos, 2005, p. 54)

These notes lead to a fundamental understanding to support the value of the publications found in this research. It is noted that there is a spatial coherence that reflects, in a way, the pandemic situation in the Spanish-speaking and Portuguese-speaking countries. It makes it clear, however, that the relationship between the actors that make up the networks can exist from face-to-face or virtual connections, especially if we take into account the positioning of Boaventura Sousa Santos (2005), which leads us to a broader reality.

## **2. OBJECTIVES**

The article was guided by a general objective to be contemplated, which consisted of discovering the role of the content of the image in the construction of the public discourse on COVID-19 in Ibero-American countries. For this, the following list of specific objectives was defined:

- Prepare a sufficiently representative data set to safely achieve the overall objective;
- Quantitatively verify the publications on COVID-19 during the indicated period;
- Carry out a comparative quantitative analysis between the publications in Portuguese and Spanish registered in the period.

## **3. METHODOLOGY**

As this is an exploratory research article, which has a broader methodological complex, the data presented here are limited to quantitative perspectives. Therefore, ethnographic content research is developed, commonly adopted to understand and explain contemporary social and cultural phenomena. The ethnographic method, according to Agrosino (2009, p.31), "(...) is based on field research (carried out in the place where people live and not in laboratories where the researcher controls the elements of behavior to be measured or observed)". In this article, the use of the multifactorial method was adopted, which has as its essence the use of two or more data collection techniques. For this, netnography is considered, which consists of collecting data from ethnographic research on the internet (Turpo Gebera, 2008).

### **3.1. The research corpus**

This research focuses on Instagram as it is the social network with the highest impact from the point of view of images. At a time when the Internet is eminently visual, the behavior patterns on image social media management platforms are expressively interesting to analyze the behavior of the population from a macro perspective.

The choice of hashtags is related to their role in the visibility of the communication topics. A role that can also promote debate perspectives and promote common narratives (Rambukkana, 2015). Through hashtags, communication multiplies and expands the interconnection nodes, expanding the possibilities of reaching messages.

Although Spain and Brazil represent only two of the Ibero-American countries, they acquired special relevance in the crisis. In fact, following Rovetta & Bhagavathula (2020), Brazil and Spain are the second and third most cited nations, regarding COVID-19, by the global community of Instagram users (with 551,000 and 376,000 hashtags, respectively), which leads us to think about a true polarization of the social conversation.

For this reason, the research corpus focuses on the publications made on this social network, identified by the hashtags #covid and/or #coronavirus, made in Spanish or Portuguese (sixth and eleventh most used language on the network and covering a wide range of user community).

### **3.2. The time frame**

The data collection period includes publications made between March 13<sup>th</sup> and May 20<sup>th</sup>, 2020, justified as follows:

- The Government of Spain declared on March 13<sup>th</sup> the "State of Alarm", which would last two months; On March 20<sup>th</sup>, the Federal Senate of Brazil approved the Decree of Public Calamity.
- The Government of Spain began the opening in June, ending quarantine. The same thing happened gradually in Brazil, after two months of social distancing plans.

### **3.3. Tools**

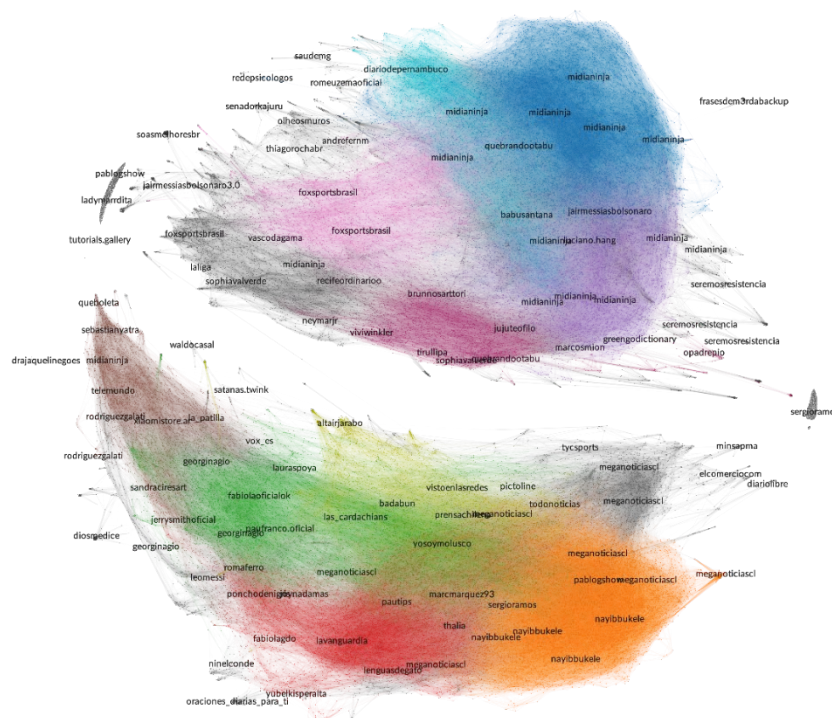
To carry out this research, the CrowdTangle software was adopted, which found 103,775 publications tagged with the selected hashtags (51,732 in Spanish and 48,746 in Portuguese, 2% of the sample in other languages not detected by the platform), issued by a total of 13,051 users.

For the data extraction process, the CrowdTangle tool (CrowdTangle Team, 2020) was used, a native Facebook app that integrates perfectly with this company's platforms (including Instagram), which allows data extraction in .csv format.

For data analysis, we opted to use the Graphtext (s.f) tool, ideal for performing complex analyzes according to the low-coding philosophy. With the tool, it was possible to transform the data, explore it, visualize it, and present its findings from a browser-based workspace.

#### 4. RESULTS

The first graphical analysis of the publications was carried out with the support of the Graphtext software, a platform that allows creating charts from big data in social networks. In figure 1, we can see a first representation of the data collection and crossing process, made up of contents in Spanish and Portuguese. It is important to note that the segmentation in different languages generated two macro groups of publications that are disconnected from each other. This is because the Hispanic and Lusophone communities have different interests from each other.



*Chart 1: Map of publications in Portuguese (top) and Spanish (bottom)*

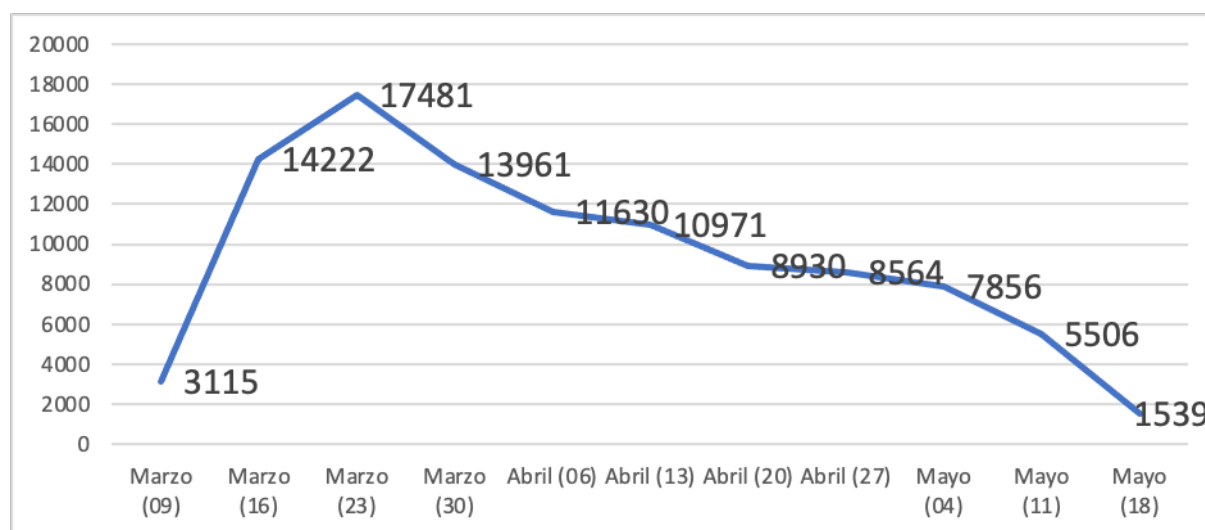
*Source: Graphtext.*

The group of posts in Spanish comprises 51,732 posts on Instagram, while the Portuguese-speaking community is represented by 48,746 posts. It is essential to clarify that the collection also identified in 2% of the cases, publications in English or in a language not defined by the system.

In both clusters, the appearance of nodes (users) with a large volume of publication stands out (described in chart 6), as well as the generation of different groups of users that are grouped by dialogues, where the common clusters stand out, although disconnected between the communities (quarantine/quarantine, health/health).

#### 4.1. Time evolution

Besides the relevance of the posts on media scandals (Thompson, 2002), the posts with hashtags #covid19 and #coronavirus had a cycle clearly interpreted in Figure 2. At the beginning of the analyzed period, we observed a strong growth of publications marked by hashtags coinciding with the decree of the State of Alarm in Spain and in much of Europe, although with time the publications wear out. This was not because the coronavirus disappeared, but because the subject is less and less talked about on Instagram. A phenomenon that was found by other studies on the use of social networks in the first phase of the pandemic, for example, Hung et al. (2020), and this could be considered as the first symptoms of "pandemic fatigue". Moreover, there is a peak of publications after the Decree of Public Calamity declared by the Government of Brazil, with the same concerns in Spanish and Portuguese. It is noteworthy that the virus reached Latin America at the same time that it was manifesting in Brazil. The same happens with Portugal and Spain, which had similar situations over time.

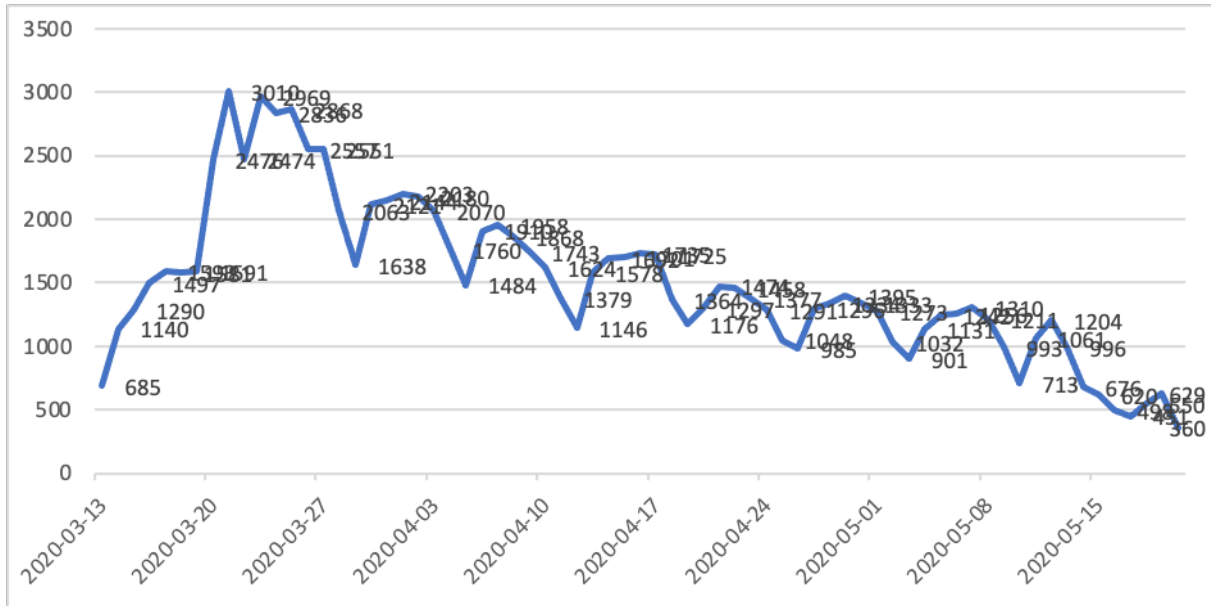


*Chart 2: Evolution of weekly publications*

*Source: self-made.*

However, Figure 3 represents something curious. Unlike what was analyzed in other research on the behavior of social media users (Martínez-Rolán et al, 2019), if we look at daily posts, we notice a drop in posts with hashtags on weekends, when the use of social networks tends to be more intense. This reality deserves

qualitatively detailed observations and suggests as a possible explanation the lower information pressure from the media about the coronavirus, derived from the lack of data and official information on weekends, which leads people to develop more habitual attitudes on Instagram, like the publication and interaction around leisure topics, less worrisome and/or depressing.



**Chart 3:** Daily evolution of publications

**Source:** self-made.

**Table 1.** *The daily evolution of publications*

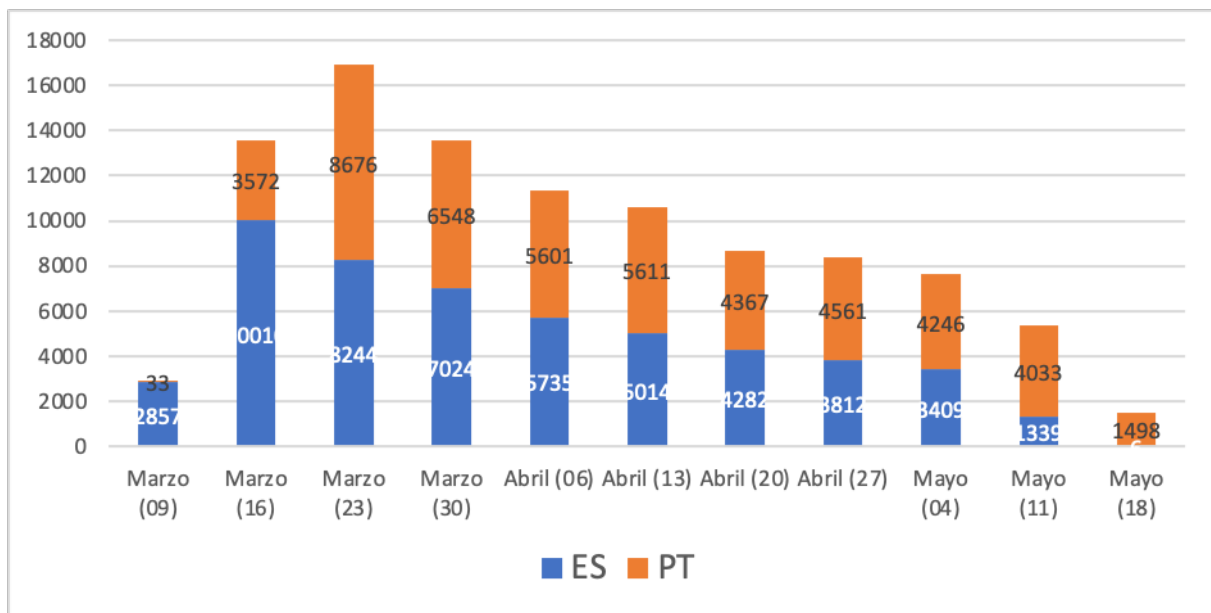
March	Nº. publications/day	April	Nº. publications/day	May	Nº. publications/day
2020-03-13	685	2020-04-01	2203	2020-05-01	1273
2020-03-14	1140	2020-04-02	2180	2020-05-02	1032
2020-03-15	1290	2020-04-03	2070	2020-05-03	901
2020-03-16	1497	2020-04-04	1760	2020-05-04	1131
2020-03-17	1593	2020-04-05	1484	2020-05-05	1242
2020-03-18	1581	2020-04-06	1910	2020-05-06	1256
2020-03-19	1591	2020-04-07	1958	2020-05-07	1310
2020-03-20	2476	2020-04-08	1868	2020-05-08	1211
2020-03-21	3010	2020-04-09	1743	2020-05-09	993
2020-03-22	2474	2020-04-10	1624	2020-05-10	713
2020-03-23	2969	2020-04-11	1379	2020-05-11	1061
2020-03-24	2836	2020-04-12	1146	2020-05-12	1204
2020-03-25	2868	2020-04-13	1578	2020-05-13	996
2020-03-26	2557	2020-04-14	1692	2020-05-14	676
2020-03-27	2551	2020-04-15	1701	2020-05-15	620
2020-03-28	2063	2020-04-16	1735	2020-05-16	498
2020-03-29	1638	2020-04-17	1725	2020-05-17	451
2020-03-30	2121	2020-04-18	1364	2020-05-18	550
2020-03-31	2144	2020-04-19	1176	2020-05-19	629
		2020-04-20	1297	2020-05-20	360
		2020-04-21	1474		
		2020-04-22	1458		
		2020-04-23	1377		
		2020-04-24	1291		
		2020-04-25	1048		
		2020-04-26	985		
		2020-04-27	1296		
		2020-04-28	1334		
		2020-04-29	1395		
		2020-04-30	1333		

**Source:** Self-made

This result is especially interesting because although practically the entire planet was confined, including Ibero-American countries, the patterns of use of Instagram, at least in terms of volume of publications, revealed a weekly trend in normal situations. Rather, even though every day seemed to be the same (it was not possible or advisable to leave the house), on weekends, publication drops were noticed.



The confinement and attrition occurred a week earlier in Spain compared to Brazil, which was projected in the social conversation around the hashtags #covid19 and #coronavirus on Instagram. As we can see in Figure 4, the design of the publication curve is made with a difference of one week between the two languages. In Spain, in particular, the confinement ended in May. For this reason, the publication curve narrowed at that time. Brazil, in turn, has remained in disorderly confinement since then, although, curiously, the curve has also decreased, probably due to social exhaustion.

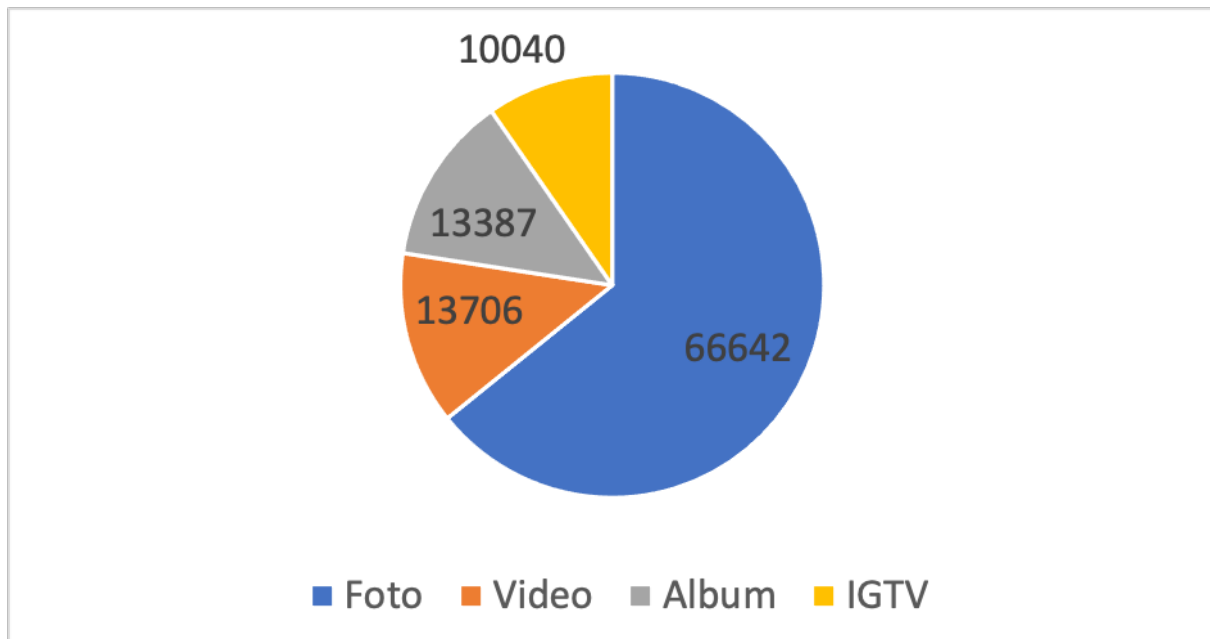


**Chart 4:** *Evolution of publications in Spanish and Portuguese*

**Source:** Self-made

Another interesting piece of quantitative information obtained in this research refers to the type of content of the publication since Instagram allows a variety of formats ranging from photography to audiovisual, through iconography, texts, and audio. Furthermore, it is possible to publish an album of up to 10 photos and make live video broadcasts. In the data collection with the hashtags #covid19 and #coronavirus, we obtained four types of publications based on their linguistic form with the following classifications (Figure 6):

- Photographs: a single photograph, optionally accompanied by a text (caption);
- Album: a set of two or more photographs optionally accompanied by a text (caption);
- Video: a video fragment optionally accompanied by a text (caption);
- Instagram TV: A live video broadcast, optionally accompanied by a text (title).



*Chart 5: Variety of publications obtained by the sample*

**Source:** Self-made

Within the scope of this collection, figure 7 draws attention with the specific figures for each type of language-form adopted. In the selection, photographs predominate with 66,642 publications (64% of the publications are unique images). This figure lives up to the origins of the social network. Photographs are the easiest way to communicate on Instagram and the favorite of users who share ideas, thoughts, concerns... condensed into a single image that, accompanied by a text, creates a multimodal discourse on what interactions are established.

The remaining 36% of posts (a total of 37,133 posts) are distributed more evenly among the other types of Instagram language. Thus, with 13% of the sample, the practical balance between publications with photo albums (an expansion of photographs present in 13,387 publications) and those that use videos to contribute their perspective to the collective narrative of the pandemic on Instagram can be highlighted (13,706 publications).

In this sense, a positive evolution can be noticed in the publications that use the audiovisual format on Instagram. While static images -photos and albums- continue to slow down the prevalence of cheerful posts on these platforms, the growing presence of videos and the rapid evolution of video broadcasts on IGTV (10,040 posts that already account for 10% of the analyzed sample) allow us to observe an evolution in the conception and appropriation of this platform by the user community.

This mixture of languages allows us to support the idea that Instagram is a post-photographic social media space, considering the concept presented by Joan

Fontcuberta (2011). For the author, the contemporary mediation environment is characterized by the association of various image languages such as photography, audiovisual, computer graphics, and iconography.

#### 4.2. Types of interaction, mean and median

The sample of this research is represented by 103,775 publications, which yields high mean and median figures. Authors such as Sheldon and Bryant (2016) defined Instagram as a network focused more on people than on relational identity. The reality is that in the daily life of the platform and the interactions that are established in it, certain personalities (from different offline entities) have been defined with greater weight and influence in the social conversation. These influencers -also in the health field- have become true opinion leaders (Fregber et al., 2011) to the point that some health authorities have requested their collaboration in the fight against the virus (Público, 2020), and their performance in the social conversation on Instagram has been an object of study (Torres Romay and García Mirón, 2020).

Thus, the publication with the highest volume of sample interaction, authored by the player Leo Messi, has, at the time of analysis, 2,656,944 shares divided into likes and comments. On the other hand, the one who received the least impact was that of the Brazilian deputy Arnaldo Jardim, who achieved 17 likes.

As can be seen in Table 2, when considering the total number of publications and interactions received, a mean of 18,947 interactions is obtained, with a median of 3,232 interactions. The data is relatively high since the number of video reproductions is always expressive. In this case, a mean of 55,831 views should be considered (the median is significantly lower, with 24,165 views).

On the other hand, the traditional forms of interaction (likes and comments) reached more modest figures, although equally high. The mean number of likes per post is 4,982, accompanied by 59 comments. Although the number that is repeated the most, the median, is the publication that contains 2,024 likes and 59 comments. This represents one comment for every 34 likes (median) or every 28 average likes.

*Table 2. Mean and median of visualization types*

	Likes	Comments	Visualizations	Total Interactions
Mean	4.982	177	55.831	18.947
Median	2.024	59	24.165	3.232

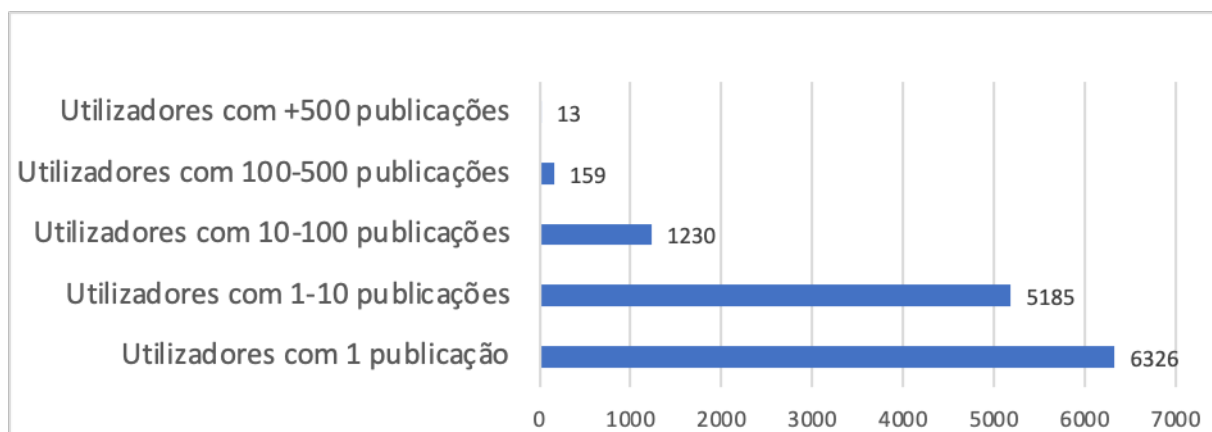
**Source:** Self-made

The data is in line with what the different levels of interaction on Instagram imply: the greater the effort required for the interaction, the lower the volume of interactions, and vice versa. Thus, reproductions (very low interaction) are much more than likes (low interaction), which in turn are smaller than comments (medium interaction).

### 4.3. Total users and participation volume

With a total of 103,775 publications, 13,051 different users were counted. Of these, about half of the users appear with a single post: 6,326. On the other hand, the other 6,587 users who were selected by the sample are responsible for the remaining 97,449 publications. It should be noted that the distribution of this participation is irregular and does not respect the mean (14.7 publications per user).

First of all, it should be noted that a small number of users (only 13) are responsible for more than 500 posts. Furthermore, there are 159 users who have published between 100 and 500 publications and 1,230 users are authors in a range between 10 and 100 publications. The highest proportion of users is in the range of 2 to 10 publications, which represents a total of 5,185.



*Chart 6: Volume of publications per user*

**Source:** Self-made.

This distribution of users reflects a logarithmic decrease in the number of messages sent, following the Pareto principle, since 20% of users would be responsible for 80% of messages: few users are responsible for most of the messages on the sample.

## 5. DISCUSSION

The data obtained from the methodology used in the netnographic study demonstrate relevance in the observation of Instagram as a space for understanding the media ecosystem during the first two months of the pandemic in Portuguese and Spanish-speaking countries. Besides expressive figures, there is a similar evolutionary design in both regions (Lusophone and Hispanic), namely, Spain and Brazil. Likewise, there is an increase in publications just after the declaration of the State of Alarm by the Government of Spain and the Decree of Public Calamity of the Federal Senate of Brazil.

It is important to consider that the Hispanic community is 577 million worldwide, while the Portuguese-speaking community represents practically half, with 260 million inhabitants (48%). Furthermore, Brazil has 210 million inhabitants, which represents almost the entire Portuguese-speaking sample.

Through the study presented here, it is observed that photography continues to be the main language of Instagram, with approximately 60% of the content collected. Adding up the photo album posts, we reached almost 75% of the posts. Still, it's important to remember that an album can contain photos and videos in a single album, which can change that number.

The presented results reinforce the idea of the growth of the image narrative as a contemporary language. This confirms, besides the hypothesis of this research, the evidence presented by Joan Fontcuberta (2011) or even Marshall McLuhan (1964) when the latter researched influenced by television in the society of the time.

Another observation found in this research refers to the volume of publications. Taking into account the total number of posts with the hashtags #covid19 and #coronavirus --103,775--, the 13,051 seem to have been published multiple times. However, approximately half of these authors (6,587 people) are responsible for 97,449 publications, which shows inequality in the intensity of participation. This difference can be observed between the position that received the most participation (from the player Lionel Messi, with 2,656,944 interactions) and the position that received the least participation (from the Brazilian federal deputy Arnaldo Jardim, with 17 interactions). This shows that the author of the profile is still fundamental, which shows the possibility of celebrities to obtain more interaction, due to their high visibility, which makes them influencers also in the non-place proposed by Augé (1994). A medium that allowed the creation of a common narrative about the pandemic of a multimodal nature, in which information from public institutions and bodies, such as that analyzed by Pinto et al. (2020)- is interspersed, at different levels, with personal experiences and knowledge that, in lonely times, become public and collective.

However, the study in which this article is inserted still has procedures to follow. This article proposes an analysis base on the social conversation about coronavirus that the Ibero-American community develops on Instagram from the perspective of Big Data. Questions about who were the main nodes of this conversation would remain unsolved, something that will be presented in future articles. However, given the various emergencies caused by the pandemic, communication occupies a fundamental place and calls for partially sharing the results obtained in the research.

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## **AUTHOR/S:**

### **Denis Renó:**

Journalist and documentary maker, Ph.D. in Social Communication from the Universidad Metodista de São Paulo (Brazil), he has developed a post-doctorate on Transmedia Journalism from the Universidad Complutense de Madrid (Spain) and a post-doctorate on Interactive Interfaces for mobile devices from the Universidad de Aveiro (Portugal). He is a professor in the Journalism Program of the Faculty of Architecture, Arts, and Communication of the Universidad Estadual Paulista – UNESP (Brazil), where he is also a professor of the postgraduate program in Digital Television. Additionally, he is a professor in the postgraduate program in Journalism at the Universidad Estadual de Ponta Grossa – UEPG (Brazil). Currently, he is the Academic Director of the Latin American Chair of Transmedia Narrative and a member of the Media Ecology Association (USA), as well as the coordinator of the Mobilab Research – Laboratory of Studies on New Narratives and Mobile Devices. The laboratory is financed by development agencies in Brazil.

[denis.reno@unesp.br](mailto:denis.reno@unesp.br)

**Orcid ID:** <https://orcid.org/0000-0003-0837-4261>

**Google Scholar:** <http://scholar.google.es/citations?user=n9FvBccAAAAJ&hl=pt-BR>

**ResearchGate:** <https://www.researchgate.net/profile/Denis-Reno-2>

**Academia.edu:** <https://unesp.academia.edu/DenisPortoRenó>

### **Xabier Martínez-Rolán:**

Ph.D. in Communication from the Universidade de Vigo, extraordinary doctorate award and professor at the Faculty of Social Sciences and Communication at this university, where he coordinates the Master's Degree in Communication in Social Media and Creation of Digital Content. His lines of research focus on the study of virtual communities, the use and appropriation of social networks and new advertising formats, and communication formulas in new media. He has recently published *Diseño de páginas web: Wordpress para todos los públicos* (Editorial UOC).

[xabier.rolan@uvigo.es](mailto:xabier.rolan@uvigo.es)

**Orcid ID:** <https://orcid.org/0000-0002-7631-2292>

**Google Scholar:** <https://scholar.google.com/citations?hl=es&user=6U99DAQAAAAJ>

**ResearchGate:** [https://www.researchgate.net/profile/Xabier\\_Martinez-Rolan](https://www.researchgate.net/profile/Xabier_Martinez-Rolan)

**Academia.edu:** <https://uvigo.academia.edu/XabierRolan>

### **Teresa Piñeiro-Otero:**

Ph.D. in Communication from the Universidade de Vigo and professor in the Degree in Audiovisual Communication from the Universidade da Coruña. She has oriented her research towards new communicative manifestations, especially in the field of sound, multimedia strategies, or transmedia narratives. Along these lines, she is the author of numerous contributions to impact journals and editorials. She has recently published *Sonidos que cuentan. La ambientación sonora audiovisual* (Editorial UOC).

[teresa.pineiro@udc.es](mailto:teresa.pineiro@udc.es)

**Orcid ID:** <https://orcid.org/0000-0001-6414-2700>

**Google Scholar:** <https://scholar.google.com/citations?user=4hOLibUAAAAJ&hl=es>

**ResearchGate:** [https://www.researchgate.net/profile/Teresa\\_Pineiro-Otero](https://www.researchgate.net/profile/Teresa_Pineiro-Otero)

**Academia.edu:** <https://coruna.academia.edu/TeresaPi%C3%B1ero>

**Andrea Versuti:**

Ph.D. in Education, Science, and Technology from UNICAMP. Professor in the area of Education, Technologies, and Communication of the Faculty of Education of the Universidade de Brasília (UnB). Professor of the Graduate Program in Education (FE/UnB). Postdoctoral student in the Graduate Program in Media and Technology at UNESP - Bauru, under the supervision of Prof. Dr. Denis Porto Reno. Member of the Research Group on Education, Philosophy, and Image (GEFI).

[andrea.versuti@gmail.com](mailto:andrea.versuti@gmail.com)

**Orcid ID:** <https://orcid.org/0000-0002-3150-5015>

**Google Scholar:** <https://scholar.google.es/citations?hl=es&user=MzIwDNwAAAAJ>

**ResearchGate:** <https://www.researchgate.net/profile/Andrea-Versuti>

**Academia.edu:** <https://brasilvia.academia.edu/AndreaVersuti>