



Difusión del conocimiento científico durante la pandemia: estrategias mediáticas realizadas por los mayores productores de investigación de Brasil

Dissemination of scientific knowledge during the pandemic: the media strategies undertaken by the largest research producers in Brazil

Disseminação do conhecimento científico durante a pandemia: as estratégias midiáticas empreendidas pelas maiores produtoras de pesquisas do Brasil

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Resumen

La pandemia del Coronavirus, como evento histórico de gran impacto para la humanidad, trajo varios desafíos, entre ellos la urgente necesidad de difundir información creíble para combatir la enfermedad y enfrentar los movimientos negacionistas y las teorías conspirativas que desafían la autoridad epistémica. Se vuelve relevante, dado este contexto, comprender cómo las instituciones científicas se posicionan en el entorno virtual para enfrentar esta realidad. Este artículo tiene como objetivo investigar la presencia de las principales instituciones productoras de conocimiento de Brasil (USP, UNIFESP, UERJ y UFRJ) en Facebook. A través del Análisis de Contenido (CA) de publicaciones realizadas en diferentes periodos del 2020 al 2022, se pudo identificar que los enfoques enunciativos estaban acordes con los aspectos cíclicos del avance del Covid-19, lo que permitió trazar una curva de aprendizaje epistemológico. Las universidades se apropiaron de su aparato mediático, con refutaciones equilibradas de las narrativas circulantes y enfoques contextualizados en un ambiente de negacionismo gubernamental que influyó en la toma de decisiones sobre políticas de salud pública.

Palabras clave: *Facebook*; negacionismo científico; Covid-19; *fake news*

Abstract

The coronavirus pandemic, as a historical event of great impact for humanity, has brought several challenges, including the urgent need to disseminate credible information to combat the disease and confront denialist movements and conspiracy theories that challenge epistemic authority. It is relevant, given this context, to understand how scientific institutions position themselves in the virtual environment to face this reality. This article aims to investigate the presence of the main knowledge-producing institutions in Brazil (USP, UNIFESP, UERJ and UFRJ) on Facebook. Through the Content Analysis (CA) of posts made in different periods from 2020 to 2022, it was possible to identify that the enunciative approaches were in line with the conjunctural aspects of the advance of Covid-19, which allowed us to draw an epistemological learning curve. Universities appropriated their media apparatus, with balanced refutations to circulating narratives and contextualized approaches in an environment of governmental denialism that influenced the decision-making in public health policies.

Keywords: *Facebook*; scientific denialism; Covid-19; *fake news*

Resumo

A pandemia do Coronavírus, como um evento histórico de grande impacto para a humanidade, trouxe diversos desafios, incluindo a necessidade urgente de divulgar informações credíveis para combater a doença e fazer frente a movimentos negacionistas e teorias conspiratórias que contestam a autoridade epistêmica. Torna-se relevante, diante deste contexto, entender como as instituições científicas se posicionam no ambiente virtual para enfrentar essa realidade. Este artigo tem como objetivo investigar a presença das principais instituições produtoras de conhecimento no Brasil (USP, UNIFESP, UERJ e UFRJ) no Facebook. Através da Análise de Conteúdo (AC) de postagens realizadas em

diferentes períodos de 2020 a 2022, foi possível identificar que as abordagens enunciativas estavam em linha com os aspectos conjunturais do avanço da Covid-19, o que nos possibilitou traçar uma curva de aprendizado epistemológica. As universidades se apropriaram do seu aparato midiático, com refutações balanceadas às narrativas circulantes e abordagens contextualizadas em um ambiente de negacionismo governamental que influenciou as tomadas de decisão das políticas públicas de saúde.

Palavras-chave: *Facebook*; negacionismo científico; Covid-19; *fake news*

Introduction

This study aims to understand how the public universities that produce the most research in Brazil positioned themselves and undertook communicative actions in the social network Facebook, in order to establish a counterpoint with the misinformation circulating during the Covid-19 pandemic, considering the conjunctural environment of the country and its democratic crisis.

The dissemination of information through digital platforms and messaging applications represents a challenge for professionals and researchers in the field of communication. Although it has allowed the expansion of silenced voices and diversity of representations in public discussions, it has also brought with it a crisis of credibility, in which the media and institutional actors are constantly questioned, contradicted and disregarded. This results in an environment of constant uncertainty regarding the veracity of the facts and content shared at all times.

It is important to emphasize that universities play a significant role as prominent institutional voices in Brazil. According to the company's Clarivate Analytics report (Escobar, 2019), 15 higher education institutions – all of them public – produce more than half of Brazilian science. It is to them that our analytical eyes turn. We established as a methodological strategy to work with the four largest research producers in Brazil: Federal University of São Paulo (UNIFESP), University of São Paulo (USP), Federal University of Rio de Janeiro (UFRJ) and University of the Estado do Rio de Janeiro (UERJ).

Our focus will be Facebook, highest-rated social network in the country, according to the website report *We Are Social (Digital in 2020, 2020)*. From the data obtained, we used the methodology Content Analysis (Bardin, 2011), in an attempt to map the actions adopted by universities to vocalize and reverberate science, joining thematic agendas from contextual aspects of the Covid-19 pandemic and appropriating the media apparatus, in a process of mediatization of society that, according to Braga (2012), affects the logic of functioning of social fields.

Theoretical reflections

Reflecting on the importance of information in the formation of a critical society in relation to the media and science is urgent, addressing issues such as the confrontation of academic and political interests in the media, the difficulty of interpreting the origin and context of information, the excess of news and the difficulty in filtering it, the appeal

to feelings at the expense of reason, adherence to biased understanding, unequal treatment of democratic guarantees and human rights, and the dissemination of biased and out of context information.

We are facing an enunciative plurality that marks a scenario of singular complexity, typical of mediatized societies (Hjavar, 2014), and makes media appropriations a decisive front for this confrontation. As far as science is concerned, communicating its content beyond specialized audiences (academic communication) is the great challenge of how complex the understanding of "science" is, as much as that of "doing science". For Farnese (2023), scientific doing produces as a result a knowledge that consolidates and becomes part of social dynamics, being materialized in the bulge of discoveries based on methods. In the course of time, changes can occur in already solidified issues, from theoretical adaptations or reissues, technological advances or even sudden changes in paradigms for society that, in turn, is the beacon for its development.

The very complexity of this field already imposes challenges for society to understand this entire chain, opening space for questions and conspiracy theories that are amplified and gain adherence by the "fact that they offer simple answers to complex problems" (Marchlewska et al., 2020, p. 864), which leads us to reflect on the need for significant efforts to enable a more informed and aware society in this context.

A pandemic brings with it an epidemiological crisis, but it also offers space for reflection under various aspects. The emergence of the SARS-CoV-2 virus, also known as the "new Coronavirus", invites us to ponder the role of science in society in the face of the relative underdevelopment and little credit that science receives in Brazilian territory.

In December 2019, the first case was identified in the city of Wuhan, China. In Brazil, the registration took place on February 26, 2020, in the city of São Paulo. On March 11, The World Health Organization (WHO) officially classified the situation as a pandemic. The spread of disinformation on a large scale through digital platforms has also become a significant concern for health authorities.

During the WHO Security Conference on February 15, 2020, Tedros Adhanom, General Director, emphasized his concern about infodemic, a global epidemic of misinformation, spreading rapidly through social media platforms and other media, representing a serious problem for public health: "we are not just fighting an epidemic; we are fighting an infodemic" (Zaracostas, 2020, p. 676).

Still, it should be considered that the new media environments have changed the way knowledge is constructed, how individuals connect and the relationship they establish with social structures.

It should be said that the advance of denialism is based on new ways of sociability disseminated through social networks, which favor accusatory discourses, often without space for answers and with immediate consequences. Conspiracy theories multiply rapidly, empty the debate and make use of provisional results of research still lacking greater legitimacy of their methods and their conclusions. The false controversies are then disseminated and accompanied by currents of opinions not based on research results, since many of them are still ongoing (Cassiani; Selles; Ostermann, 2022, p.6).

For Santos (2022), the replacement of epistemic mediations by mediations that follow lines of belonging to groups has a direct translation to scientific denialism. The question is not whether science produces absolute truth or whether it holds the truth itself. It is mainly about how and by whom the evidence is handled, taking into account the structure, methods, understanding and capacity for self-criticism, among other aspects.

The crisis of trust profoundly affects the cognitive environment because knowledge is produced cooperatively – if knowledge were produced individually, perhaps it would not be so important to trust others to know something. The alignment of beliefs by virtue of reasons of belonging versus epistemic reasons goes directly to the heart of the problem: it affects the trust that runs through belonging to groups. Translating this problem into epistemic terms, the crisis of trust affects the acceptance of the mediations necessary for all knowledge. This is not only true for science, but also for knowing what is happening in the world. Thus, the very existence of the pandemic, or its denial, even if people are dying from COVID-19, etc., all this is known by some kind of mediation (Santos, 2022, p.9).

According to Oliveira (2020), identifying the discourses around conspiracy theories in this moment of pandemic presents us with important clues to reflect on ourselves, scientists and members of scientific institutions. "The first of these is to understand that adherents of conspiracy theories reflect a disbelief about epistemic institutions and manifest their perception of conflicts of interest of these same institutions that are recurrently mediatized, especially in relation to the pharmaceutical industries and geopolitical disputes" (Oliveira, 2020, p. 8).

Oliveira follows his reasoning by stating that uncertainties about scientific evidence to guide political decisions on medical orientation, isolation and social distancing or the effectiveness of wearing a mask in public spaces, in addition to economic and epidemiological forecasts with jargon and graphics dominated only by peers, "are a potential fuel for conspiracy theories, which have been instrumentalized in the political field" (Oliveira, 2020, p. 9). Thus, instead of publicly providing and concealing more specific knowledge about the new Coronavirus, based on support and promotion of research in various areas of knowledge, what we have recurrently as a strategy of political leaders, especially far-right, is to leave the discussion about science played into the hands of anti-specialists or non-scientists.

Luciana Rathsam (2021) states that "denialism in Brazil has taken on high proportions, manifesting itself in the denial or minimization of the severity of the disease, in the boycott of preventive measures, in the underreporting of epidemiological data, in the omission of drawing up national health strategies, in the encouragement of therapeutic treatments without scientific validation and in the attempt to discredit the vaccine". According to the author, this is an environment capable of generating doubts and various questions, affecting compliance with the prevention protocols established by epidemiologists, greatly compromising the effectiveness of public policies in the country to contain the advance of infection.

The then President of the Republic Jair Bolsonaro, according to Santos and Fossá (2020), contributed to this scenario by determining controversial administrative actions and issuing public statements that discredited measures to contain the disease. The former

head of the Federal Executive has taken a stance contrary to the recommendations of doctors and the WHO, antagonizing governors and mayors over isolation policies.

Faced with the refusal to accept the recommendations of experts, two ministers of Health, who were doctors, were exchanged for an Army General (Zylberkan; Campos, 2020). In some circumstances, Bolsonaro promoted and shared false content about the coronavirus on his social networks, always supported by a narrative that goes against science, ranging from the famous phrase "it's just a little flu", to incentives for agglomerations, the non-use of masks and ineffective therapies without validation and proof.

All this Brazilian context led the magazine *The Lancet* publish an editorial in the issue of May 09, 2020, entitled "*COVID-19 in Brazil: "So what?"*" (The Lancet, 2020, p. 1461), referring to Bolsonaro's response to a reporter about the high number of cases and deaths in the country: "so what? What you want me to do?". The text emphasizes the importance of scientific entities taking a stand against the position of the head of the federal executive and calling for more investments in the area.

The reports made so far lead us to a complex duality: while science is instigated to offer quick answers to deal with the pandemic, it is simultaneously questioned. There is an ambiguous perception on the part of the public domain in relation to science and its results, sometimes praising them, sometimes repudiating them. Thus, the question that underlies the proposal of this work is: how do scientific institutions position themselves before society and establish their communications to face this pandemic reality, using the functionalities of virtual social networks to disseminate knowledge about the disease and approach the public?

Since controversies about science are strengthened as a result of mediatization (Hjarvard, 2014), the understanding that the media exert influence not only on the communicative webs between social actors and messages, but also on the relations between the media and other social spheres, leads us to question what lessons the scientific community has learned, based on evidence, about the interaction between science and social communication, especially in the face of urgent challenges to combat denialism. The increased visibility of these movements highlights an unprecedented challenge facing contemporary society and highlights the crucial role that scientific institutions must play in this context.

Methodology and Analysis Corpus

As we presented in the introductory part, we established as a methodological strategy to work with the Facebook fanpages of the four largest research producers in Brazil: Federal University of São Paulo (UNIFESP), University of São Paulo (USP), Federal University of Rio de Janeiro (UFRJ) and the State University of Rio de Janeiro (UERJ). We used the Content Analysis methodology (Bardin, 2011) to map the actions of these universities in the dissemination and promotion of science, especially in the context of the Covid-19 pandemic.

The analysis intends to draw a panorama that can scale the response of public universities to the challenges imposed by the spread of Covid-19, especially with regard to the development of research to mitigate the harmful effects of the disease; identify the

themes addressed by universities in different periods of the pandemic, from a perspective that reflects digital culture and the production of network content; verify to what extent the published content contributed to the legitimization of universities as a producer of knowledge; and understand how these institutions position themselves in a period marked by disinformation and conspiracy theories.

In the course of the evolution of the disease, to answer the questions and meet the proposed objectives, we list three periods that have important records related to the advance of the disease, prevention measures, collapse of the health system and vaccination.

The first section covers the first three months of the pandemic, from March 1 to May 31, 2020, a scenario marked by uncertainties, with numerous questions. What would be the best treatment approach? What are the strategies to be adopted during the period without the availability of the vaccine? How can we reduce the severity and mortality rate associated with Covid-19? Could we point out, at first, some medication capable of curing infected people? Elderly people and people with chronic diseases are more susceptible to severe cases for what reason? There was a wide circulation of information on the internet and social networks, stating that the adoption of various protocols could be effective in combating the coronavirus. How does this information originate and how does the scientific community appropriate these questions for proof?

A year after the start of the pandemic, several answers to the questions we presented were already being enforced. Therefore, we need to verify how these thematic modulations were practiced in the publications of the universities on Facebook. The period from March 1 to May 31, 2021, which corresponds to our second section of analysis, groups some historical records of the pandemic in Brazil, such as the record of daily deaths, the number of victims by Covid-19 in 2021 exceeding the total of 2020 and the developments of the vaccination initiated in the first days of the year (Butantan, 2021).

Our third cut has as its milestone the relaxation of prevention measures, which coincides with the end of the year. From December 2021 to February 2022, Brazil reached 80% of its target population fully vaccinated, authorized the application of vaccines for children and adolescents and began to offer the booster dose of the immunizing agent for adults. On the other hand, Europe and the United States were experiencing the advance of the Omicron variant, triggering the alert to the need to maintain care (Butantan, 2021).

Results

With the pandemic, research and scientific articles on the topic began to receive more media attention, which is already proven by quantitative data when it is verified that issues related to the disease deserved the centrality of communications on the fanpages of universities (Chart 1).

Chart 1. Quantity of posts at the beginning of the pandemic

University	Total posts	Pandemic only	Percentage
USP	137	93	67,8%
UNIFESP	169	106	62,7%
UERJ	192	161	83,8%
UFRJ	219	178	81,2%
Total	717	538	75,03%

Source: prepared by the authors

In a preliminary analysis, it is possible to notice that the scientific community itself recognizes that it knows little and is learning over time. Because it was a new disease, the researchers had more questions than answers. Faced with the need for rapid return of scientific sectors to avoid further loss of lives, universities made the decision to redirect their efforts to the creation and sharing of posts to combat Covid-19.

The contents addressed by the institutions sought to establish a counterpoint to what was put into circulation. The way in which many posts were created may demonstrate that there was an attempt to improve the understanding of science and its methodologies, in the search for possible ways, with evidence, to contain the disease. The lack of familiarity about how the studies are done, added to the natural anxiety that a difficult moment like this provides, opened space for information to be interpreted, or even invented, and disseminated incorrectly.

In a post made on April 25, 2020, UFRJ makes clear this understanding about the *modus operandi* and points out that this can be a way to combat disinformation, along with the need to promote transparency and open review of scientific information (Figure 1). In the same post, the measures, hitherto known, for the prevention of the disease are evidenced.

Figure 1 - Importance of science in the fight against Coronavirus



In the posts produced by the Universities, five thematic categories were mobilized (Chart 2) that pointed to the initial challenges of bringing to the public questions that evidenced the potential harmful effects of the disease and its reflections on the social conjuncture when the first containment measures were put into practice.

Chart 2. Description of the thematic categories highlighted at the beginning of the pandemic

Categories	Description	Subcategories
Existence of the disease	They seek to situate the reader with posts created about the circulation of Covid-19 and its severity, in the face of a scenario of uncertainties that may compromise the country's response to the pandemic.	Scientific evidence
		Symptoms and diagnosis
		Prevention and awareness measures
		Treatment and medications
Vaccine	They include announcements of tests aimed at verifying whether existing vaccines are effective in combating the new coronavirus and the establishment of partnerships with other institutions to make a new feasible immunizing agent.	
Impacts on society	They address the effects of Covid-19 on public health, the economy and different social contexts.	
Routine of universities	They inform the academic community and the general population about the routines of the various sectors of the University, which have started to operate remotely, and the implementation of remote teaching.	Functioning of administrative activities
		Implementation of remote teaching
		Solidarity campaigns
Official stance	They present notes that involve public funding for research and political decisions that tend to trivialize the pandemic and its consequences on society.	Research funding
		Public health policies
		<i>Misinformation / fake news / infodemic</i>

Source: prepared by the authors

One year after the start of the pandemic, on March 11, 2021, Brazil had 273.124 victims and 11.284.269 registered cases of the disease (Portal G1, 2021). The daily average of official notifications and deaths was growing, which placed the country as the epicenter of the disease, accounting for 11% of Covid-19 deaths worldwide (CNN Brasil, 2021). The vaccine, seen as the main solution, was already a reality. Its application began in January 2021 and was initially aimed at specific audiences, such as the elderly and health professionals, considered the most vulnerable.

In this second moment of our analysis, which corresponds to the period from March 1 to May 31, 2021, the country set a record in the number of deaths from Coronavirus in 24 hours, with 4.249 victims, on April 8. To get an idea of the dimension of the Brazilian epidemiological scenario, the deaths registered in the first months of 2021 exceeded the total verified in 2020: in 113 days, 195.949 people lost their lives to Covid-19, against 194.976 in 289 days of the pandemic in 2020.

What could justify the resurgence of the epidemiological scenario? If there have been changes in the pandemic context, it is believed that other approaches should be worked on in the content designed by universities. After all, what does science have to say in the face of this adverse scenario?

The pandemic continued to obtain the centrality of the discussions and thematic modulations were necessary and detected in the fanpages of universities. More than half of the posts had some kind of reference about the disease (Chart 3).

Chart 3 - Quantity of posts one year after the start of the pandemic

Universities	Total posts	Pandemic only	Percentage
USP:	621	356	57,3%
UNIFESP:	275	144	52,3%
UERJ:	230	116	50,4%
UFRJ:	131	77	58,7%
Total	1257	693	55,1 %

Source: prepared by the authors

The five thematic axes identified in our first section remained with more recent approaches. But with each new discovery, the scenario changes and it is necessary to update to take the next steps and, thus, the facts imposed themselves in the communications made by the universities. Given the context, there was a need to expand discussions that were inserted as subtopics in three categories highlighted with gray filling in Chart 4.

Chart 4 - Thematic categories triggered one year after the start of the pandemic

Categories	Description	Subcategories
Vaccines	They inform the immunizing agents available for application and clarify their importance as a tool used in public health interventions to prevent and control diseases.	Awareness campaigns
		Efficacy and safety
		Immunization strategy
		New vaccines
Existence of the disease	They seek to situate the reader with posts created about the circulation of Covid-19 and its severity, in the face of a scenario of uncertainties that may compromise the country's response to the pandemic.	Scientific evidence
		Symptoms and diagnosis
		Prevention and awareness measures
		Treatment and medications
		Aftereffects
		Variants and waves
Impacts on society	They address the effects of Covid-19 on public health, the economy and different social contexts.	Legacy
		Current context
Routine of universities	They inform the academic community and the general population about the routines of the various sectors of the remote University and the implementation of remote teaching.	Functioning of administrative and teaching activities
		Solidarity campaigns
Official stance	They present notes that involve public funding for research and political decisions that tend to trivialize the pandemic and its consequences on society.	Research funding
		Public health policies
		Misinformation / fake news / infodemic

Source: prepared by the author

"Vaccines" were the central target of denialist discourses that, in general, used two frameworks: either they stimulated distrust in science, caused by potential methodological disagreements and uncertainties about causal relationships; or they created conspiratorial narratives, suggesting agreements between governments and laboratories and other interests of powerful groups. For universities, these narratives

influenced policies to confront the disease, contributing to the worsening of the health crisis.

Figure 2 - Denialist narratives influence government actions



Source: USP fanpage

The pandemic figures were used as an argument to disqualify immunizing agents and question their efficiency and safety. After all, it is on doubt that the conspiracy rests. And an answer from science was called for.

It is worth noting that Brazil is a world reference when it comes to vaccination strategies. The country was a pioneer in the incorporation of several immunizing agents in the calendar of the Unified Health System (SUS) and is one of the few in the world that offers, in a universal way, an extensive and comprehensive list of immunobiologicals through the National Immunization Program (PNI). Universities sought to rescue these historic achievements by creating "Awareness Campaigns", highlighting that vaccination is one of the most effective, cost-effective and life-saving public health interventions (Figure 3).

Figure 3 - Importance of vaccination



Source: USP fanpage

The "efficacy and safety" of immunizing agents were informed, with publications that emphasized the processes for their discovery, reinforcing that, before being approved, they undergo rigorous tests throughout the different phases of clinical trials. Moreover, continuous studies are carried out even after the start of its application. Adverse events were also clarified in order to rule out the association with diseases.

For universities, the positive perception about the importance, safety and efficacy of vaccines, in order to avoid people's hesitation in taking the recommended doses, should go hand in hand with an effective "Immunization Strategy". Brazil's challenge in the face of Covid-19 was to deal with the lack of planning by the Federal Government. The country was facing a shortage of doses, causing shutdowns in several cities. The researchers defended the need for more effective information systems that could better guide the planning and execution of actions.

While immunization progressed, even insipidly, efforts to discover new formulas were ongoing. Many of these initiatives came from groups of researchers from universities, either in partnerships with international organizations, or genuinely Brazilian. The subcategory "new vaccines" reported on these advances, highlighting, mainly, issues involving the advancement of technology and the accumulation of knowledge thanks to many years of research by Brazilian scientists.

In the third period of our analysis, between December 1, 2021 and February 28, 2022, the flexibility of protective measures adopted by state and municipal governments, such as the use of masks and the holding of crowded events, is observed. The decisions coincided with the proximity of end-of-year celebrations, school holidays and Carnival, which could suggest the idea that the pandemic was coming to an end.

For the leaders of world entities such as the UN and WHO, such thinking is misguided, since the data show a "scandalously unequal distribution of vaccines" (UN News, 2022) and the high number of new cases and deaths that still continued worldwide.

The emergence of a new variant, baptized as Omicron, began to worry and leave the world on alert about a new wave of the pandemic. There were still many doubts regarding this strain, but it was already known that the transmission rate was higher in

relation to the others that circulated and the cases of patients infected by it were from unimmunized people. At the time, Brazil was beginning to apply doses of vaccines for children and adolescents and indicated the need for booster doses for adults and the elderly. On the first day of our analysis, on December 1, 2021, the country reached 615,020 deaths and 22,104,631 registered cases of the disease (Portal G1, 2021) and epidemiologists indicated an upward trend for the coming weeks.

These alerts were covered by the universities in their posts, which synthesized recommendations, considering that there is still an ongoing pandemic, but with scenarios quite different from previous phases and with future challenges. Unlike the other excerpts, this time, the theme did not include most of the communications, but even to a lesser extent, the identified approaches were aligned with the needs of the context of the time (Chart 5).

Chart 5. Quantitative of posts after easing of preventive measures to the pandemic

Universities	Total posts	Pandemic only	Percentage
USP	451	39	8,6%
UNIFESP	215	24	11,1%
UERJ	214	32	14,9%
UFRJ	121	13	10,7%
Total	1001	108	10,8%

Source: prepared by the authors

Two categories were evident in this period, namely:

- Existence of the disease: reinforces the main characteristics of Covid-19 and warns of the need to maintain protective measures, such as social distancing, correct use of masks, hand washing and frequent use of alcohol gel, even with the advance of vaccination. The emergence of the Omicron variant was evidenced, although there was still no certainty about its potential effects on the health of the population.
- Vaccines: raises awareness about the importance of immunization, encouraging the public to join ongoing campaigns. The researchers explained that its application does not confer immediate protection, since it is necessary to complete the scheme of the number of doses foreseen, a certain time to stimulate the immune system and a wide coverage to guarantee herd immunity and prevent the circulation of the virus, thus preventing the emergence of new variants. The universities also clarified that, until treatments for the infection are identified, vaccines will continue to be the only key to combating the pandemic.

The other categories that we presented in the previous analyzes were detected, however, in a complementary way, always as an unfolding of the two main axes that we detected in this stage of the work. The universities sought the expert opinion of scientists and researchers, who know and have research capacity on the dynamics of the disease and its transmission to situate their followers on the reality of that moment.

Faced with doubts, the universities considered premature the initiatives of governments to make protective measures more flexible and defended measures such as mass vaccination, expanded testing, the use of antivirals and the fight against disinformation, all of which are the best strategies to keep the situation under control.

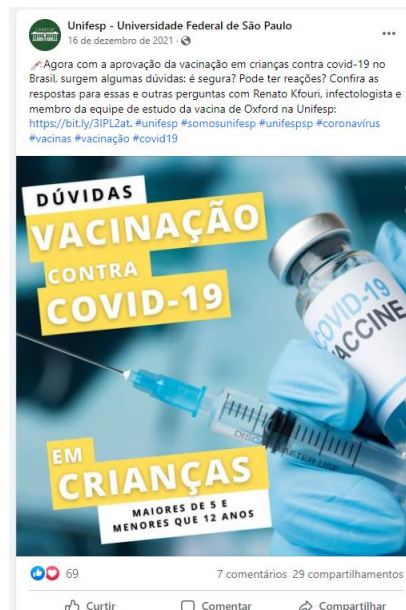
Figure 4. Clarifications on the Omicron variant



Source: USP and UNIFESP fanpages

The discussion about the existence of the disease and the need to reaffirm that the pandemic is not over led to a focus on issues related to "vaccines", especially among children and young people, who were under attack by conspiratorial currents. The narratives that circulated generated distrust of parents or guardians in the face of factors such as accelerated contamination by the Omicron variant, ignorance about the discoveries and advances in science, dissemination of false news and the predominant fear that the Covid-19 vaccine would cause side effects.

Figure 5. Universities clarify doubts about vaccines



Source: USP, UERJ, UFRJ and UNIFESP fanpages

We can infer, in a preliminary way, the crucial importance of reflection on the power relations that permeate scientific dissemination. This approach represents an arduous and often tiring but essential challenge. It is worth noting that this is not, in any way, to disqualify the various social actors involved in the country's scientific policy, be they the University, the government or the productive sector. On the contrary, the goal is to ensure the diversity of voices, taking into account the role and influence of the media in the formation of collective consciousness.

In this search for new paths imposed by the pandemic, it is crucial not to lose sight of the communicational dynamics in which everything is intertwined in multimedia networks, with fragmented and contextless information, without a historical perspective that allows connecting the present to the past. By establishing correlations for a vision of the future, universities assume the responsibility of becoming spaces for social discussions, not only theoretical and abstract, but also open to new ideas, positions and opinions.

Analyses and discussions

The SARS-CoV-2 pandemic brought major challenges to science, not only because of the need for rapid responses to cope with the advance of the disease, but also made it possible to reflect on what kind of epistemological obstacles the field still faces. The media field proves to be a fundamental place for science, and its representative institutions are challenged to launch efforts to think about models of public communication that can correspond to the improvement of a kind of "translation" of scientific discoveries for society.

The informality adopted by the institutions in their posts was one of the points we highlighted. The tactic would produce as a result the familiarity of individuals with scientific work, and may generate, as a consequence, confidence in the methods and awareness of the services they can provide.

The attempt to approach the public and humanize science was configured from the personalization of content. For these institutions, it was not enough just to publicize the research; it mattered who carried it out. This was true for both teachers, servers, students and alumni. When not named, the posts referenced the industry or research group involved. An attempt, also, to value their internal community, recognizing the relevance of the services they provide to society.

The publications carried out were mostly made using the remediation strategy, a concept established by Bolter and Grusin (2000), which is configured when characteristic elements of one media are articulated in another. According to these authors, digital media have a great capacity to "remedy" practically all the elements of previous media, also transforming the experience of these vehicles into a kind of content feedback. The information is placed objectively on Facebook, allowing the follower to have access to other sources, through links, to delve into subjects of interest.

This behavior is in the possibility of agglutinating images, photos, videos, texts, sounds and other languages in other media, from the technological architecture of the platform. In this way, the Facebook page would function as a kind of "bait", in which followers are encouraged to access other institutional vehicles of the universities. Therefore, from these characteristics, the fanpages allow us a holistic view, of course still restricted, but which gives us clues as to how these institutions implemented their organizational communication policies, moving their entire media apparatus.

In addition to their own institutional addresses, universities show in their posts the media spaces they occupy in traditional media vehicles. The fact can be justified by the need to exploit symbolic capital⁴ channels in the popular imagination when it comes to the autonomy and credibility built by the fields of journalism and science. The scientific willingness to seek authority and legitimacy in other fields and devices is an alternative to keep breath in the struggles, in order to prevent worldly oscillations from appropriating their scientific achievements and distorting the knowledge coming from the Academy (Bourdieu, 1997).

⁴The concept of symbolic capital appears in the work of Bourdieu (1989) as the power attributed to those who have obtained sufficient prestige and notoriety to be able to impose recognition.

This tactic, which we classify here, borrowing a term from biology, as "media symbiosis", constitutes a mutually advantageous relationship in which, in this case, two different fields can benefit from this association. Universities and journalistic vehicles promote a greater overlap between the logics and protocols common to their areas, creating an alternative way of mediation and listening in social networks in times of pandemic of the new Coronavirus.

Thus, the media uses the speech of scholars and works developed in research institutions as arguments of authority to support their narratives and win the trust of the public. The University, in turn, by gaining this visibility, uses this content in its communications, in an attempt to show that its productions are being "chancelated" by these vehicles and being legitimized. Thus, the facts revealed on both fronts contribute to the social construction of a reality and to the production of meaning effects. After all, science needs to regiment social segments and create and work relationships to solidify a network of influences.

This posture of universities in articulating several vehicles in their fanpages is supported by the studies of Wilson Bueno (2010) when he says that it is crucial that the scientific field and the field of media are increasingly close. According to him, scientific dissemination is an activity that uses "resources, techniques, processes and products (vehicles or channels) for the dissemination of scientific, technological information or associated with innovations to the lay public" (Well, 2010, p.2).

Universities, when producing their contents, took as a basis the universal character of science and the challenges imposed on the field. The yearning for answers and solutions to control the virus and its consequences gained prominence in the frequency of publications in the three distinct moments of the pandemic that we selected. The analysis allowed the division into categories in which it was possible to verify the approaches of themes modulated according to the evolution of the disease itself and contextualized from the social dynamics that guided the public debate, coming from narratives misaligned with the guidelines recommended by the researchers.

Santos (1988) states that dialogue is essential for the characteristics of what he calls post modern science, inserted in a context of transition of paradigms. The author goes further, to understand that science no longer has a dominant narrative to the point of enjoying hegemonic and solid autonomy in society, because, increasingly, it (science) is made in the dynamism of informational exchanges, in the struggles and movements in general of social fields, in which there is a plurality of languages and narratives.

It seems evident that university institutions sought to understand the diverse and coincident social elements evident in the public sphere. This dynamic resulted in a continuous learning process during the pandemic, allowing us to establish an epistemological learning curve, in which the epidemiological / health context was impacted by political issues, economic conjunctures, aspects of popular culture and the epistemological developments that led to a series of discoveries to mitigate the effects of the disease: "It is necessary [...] to recognize the spaces of knowledge production in territorialities that are not part of a hegemonic axis of science" (Sousa; Oliveira, 2018, p. 96).

In each situation, the curve was reshaped, but the shape of the line followed the same logic: against denial, the affirmation. The published contents advanced in interconnected and transdisciplinary directions, allowing the debates not only to be

broadened, converging in an empirical and theoretically cohesive panorama of the future, but providing a lively debate about the transformations in the ways of communicating science in contemporary reality.

The Brazilian environment of exacerbated polarization of public opinion regarding Covid-19, however, imposed a greater challenge to the deconstruction of misinformation. Bolsonaro's deliberate attitudes, the actions of the federal administration and systematic attacks on institutions contributed to the worsening of the pandemic. This "government denialism" was fought by universities without a forceful confrontation and denials of specific facts. The exception was the official notes in which these institutions took a stand against the implemented policies and claimed investments.

What was verified was a balanced refutation, with the deconstruction of weak theses, which were replaced by arguments supported by scientific evidence, whose existence the public could until then be unaware. In this dialogue, instead of stigmatizing or disrespecting people who are afraid or reticent about the vaccine, for example, universities have legitimized their space with a more peaceful and, at the same time, persuasive content in times of political and social polarization.

From the analyzes we present, it was possible to identify the initiatives of the universities, which demonstrate how the media environment has an important influence on the construction of its representativeness and legitimacy with society, as this process, according to Moscovici (2002), is also crossed by informative processes. It is a form of knowledge built in sociocultural contexts, since most of its communication was linked to issues directly related to the pandemic.

The deliberate discredit that we have detected throughout the pandemic interferes with the acceptance of the mediations necessary for all knowledge, which directly affects universities. Mafra (2016) draws attention to a crisis of science present in current democratic environments and that presses for new modes of interaction with society.

The questioning of scientific *ethos* bring up the need to rethink the place of universities in the social fabric, since they are called to public dialogue and there is the emergence of social groups that understand the public communication of science as a right, a practical imperative in democracy. It is part of the mission of universities to make the knowledge and innovation they produce accessible to a wider public. The democratization of knowledge should be one of the priorities, generating visibility for the institution and is also a form of accountability to the society that maintains them, guided by the principle of transparency (Mafra, 2016, p.165).

This requires the formulation of organizational communication policies that go beyond the strategic perspective and are committed to responding to public demands for participation. Mafra (2016, p.171) believes it is possible to develop science communication policies that reconcile the "public interest and the multiple set of interests existing in the complex of scientific institutions", welcoming dialogue. Although the organizational environment can be challenging and cause discussion, it is essential that democratic principles serve as a normative guideline for this context.

Final remarks

If 2020 will be remembered as the year of the Covid-19 pandemic, it will also be remembered as the moment when science was able to conduct research on the nature and spread of the virus in record time, as well as discover means to neutralize it. Anticipating risks, combating misinformation and denialism, and seeking to strengthen positive relationships between scientific, social, political, economic, environmental, pharmacological, and medical fields are urgent challenges. This period also remained in history as one in which the control of the disease ceased to be just a health issue and became a political conflict. That is, it turned into a battle fought through disputes of differing opinions and systematic attacks on scientific institutions, aimed at achieving political supremacy.

From the analyses of the fanpages of the Federal and State Universities of São Paulo and Rio de Janeiro that we proposed in the development of this work, we realized that the pandemic was configured in an environment of "governmental denialism", which influenced the decision-making of public health policies and collaborated for the dissemination of conspiracy theories and disinformation, discrediting epistemic institutions. Imbued with their responsibilities as knowledge producers, universities disseminated scientific findings and established counterpoints to circulating narratives, notably on virtual social networks, with a "balanced refutation", providing a coherent and contextualized explanation of the pandemic's developments.

The approaches were in tune with the conjunctural aspects of the disease, which allowed us to categorize the themes in different periods, thus establishing an "epistemological learning curve", in which science advanced with more robust and conclusive research of the virus, seeking to perceive the multiple and simultaneous aspects in force, as the dynamics of the disease was understood, and knowledge mastered. The outline of the drawing seemed evident to us: against denial, affirmation, whether of the very existence of the disease, the importance of vaccines or the continuity of the pandemic.

It is crucial that information plays an effective role in the formation of a critical and well-informed society in relation to the media and science, thus aiming to promote changes in social structures of thought. For this, it is necessary to establish collaborative efforts and partnerships that help us more accurately diagnose various issues, both in content production and in reception studies. These issues encompass topics such as the alignment of the information and communication media with the interests of economic and political power; the difficulty of users/readers in interpreting the origin, foundations, contexts, functioning and motivations of information and facts; and the predominance of summarized news devoid of criticism and contrast, often based on sources with hidden or uncertain interests.

Although the virtual environment is already part of the reality of institutions even before the onset of the disease, it is crucial to recognize that, in moments of crisis, it is necessary to implement strategies, question the narratives in circulation and understand that these postures and actions have a significant historical heritage. We do not seek to provide answers to recent processes in the academic field, but it is certainly important to position ourselves in relation to the topic and propose analytical approaches.

The procedures, foundations and elements of research involve explanatory systems and should be open to the public. Therefore, universities not only play the role

of transmitting systematized and socially recognized knowledge, but they are also spaces where conceptions, principles, values and behaviors are internalized, contributing to the formation of social interactions and power dynamics.

We can conclude, therefore, that the media plays a significant role in the representation and validation of universities, since this process is influenced by informational methods. The implementation of communication policies and the use of the media consolidate, establish, substantiate and formalize a simple but extremely powerful principle: if the university is the place of knowledge, research, systematic doubt, dialogue and also the confrontation of ideas (in a civilized and courteous way), then its communication must be one that inquires, ponders, analyzes the circumstances and clearly exposes differences of opinion, without restrictions or prohibitions.

It is essential to ensure the presence of science in political and economic decision-making in the country, establish its validation before society and arouse the interest of public opinion, politicians, social organizations and, above all, the media. In this sense, it is extremely important that there is greater proximity and connection between the scientific field and the media field.

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