Platformization of Truth: Covid-19 Vaccination Discursive Groups on Twitter

Plataformização da Verdade: Os Grupos Discursivos Sobre Vacinação Contra COVID-19 no Twitter

Plataformización de la Verdad: Los Grupos Discursivos Sobre la Vacunación Contra el Covid-19 en Twitter

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Abstract

This work discusses the relationship between the will for truth regarding COVID-19 vaccination and the different discursive groups in the so-called society of platform on Twitter. Specifically, this research is conducted through (1) understanding the network structure through Social Network Analysis and (2) evaluating the discourses of the groups based on the analytical concept of 'plataformization of truth.' Both the proposition of this concept and the contextualization of this research are rooted in Michel Foucault's tools. Mixed methods are used to analyze the data collected on vaccination from December 2020 to January 17, 2021, on Twitter. Social Network Analysis was used to assess the composition of retweets on the topic, enabling the identification of antagonistic groups in the network. Subsequently, the concept of platformzation of truth is applied to qualify the content of a subset of the collected sample. The results indicate that two discursive groups were evident on the social network platform, with one cluster displaying an anti-vaccine stance and two clusters forming the pro-vaccine wing. The pro-vaccine wing employs different methods to disseminate the will for truth in favor of vaccination, with one group using humor and memes, and another group using predominantly scientific, journalistic, and/or political language. In the case of the anti-vaccine group, the discourse revolves around distrust of vaccines combating the coronavirus, especially CoronaVac. As a limitation, it should be noted that data collection is carried out from a segment of social media on a specific subject, which does not portray the entirety of the content present on the platform regarding that subject.

Keywords: platform, vaccination, COVID-19, twitter, truth, discourse

Resumo

Este trabalho discute a relação entre vontade de verdade sobre vacinação contra COVID-19 e os diferentes grupos discursivos na dita sociedade da plataforma no Twitter. Especificamente, realiza-se essa pesquisa a partir da (1) compreensão da estrutura da rede a partir da Análise de Redes Sociais e (2) da avaliação de falas dos grupos a partir da proposição do conceito analítico "plataformização da verdade". Tanto a proposição deste conceito quanto a contextualização desta pesquisa parte de ferramentas de Michel Foucault. São utilizados métodos mistos para analisar dados coletados sobre vacinação de dezembro de 2020 até 17 de janeiro de 2021 no Twitter. Se utilizou a Análise de Redes Sociais para avaliar a composição dos retweets sobre a temática, sendo capaz de identificar os grupos antagônicos na rede. Em seguida, o conceito de plataformização da verdade é exercitado para qualificar o conteúdo de um recorte da amostra coletada. Os resultados apontam que foram evidenciados dois grupos discursivos na plataforma de rede social, sendo apontado um cluster com caráter antivacina e dois clusters formadores da ala pró-vacina. A ala pró-vacina apresenta diferentes maneiras de disseminar a vontade de verdade a favor da vacinação, sendo um grupo utilizador de humor e memes e outro grupo de uma linguagem majoritariamente

científica, jornalística e/ou política. No caso do grupo antivacina, o discurso é de desconfiança com as vacinas que combatem o coronavírus, especialmente a CoronaVac. Como limitação, tem-se que a coleta de dados é feita a partir de um recorte da mídia social sobre determinado assunto, o que não retrata a totalidade do conteúdo presente na plataforma sobre tal.

Palavras-chave: plataformas, vacinação, COVID-19, twitter, verdade, discurso

Resumen

Este trabajo discute la relación entre la voluntad de verdad con respecto a la vacunación contra la COVID-19 y los diferentes grupos discursivos en la llamada sociedad de la plataforma Twitter. Específicamente, esta investigación se lleva a cabo a través de (1) la comprensión de la estructura de la red mediante el Análisis de Redes Sociales y (2) la evaluación de los discursos de los grupos basada en el concepto analítico de 'plataformización de la verdad'. Tanto la proposición de este concepto como la contextualización de esta investigación tienen sus raíces en las herramientas de Michel Foucault. Se utilizan métodos mixtos para analizar datos recopilados sobre la vacunación desde diciembre de 2020 hasta el 17 de enero de 2021 en Twitter. El Análisis de Redes Sociales se utilizó para evaluar la composición de los retweets sobre el tema, lo que permitió la identificación de grupos antagónicos en la red. Posteriormente, se aplica el concepto de 'plataformización de la verdad' para calificar el contenido de una muestra recopilada. Los resultados indican que en la plataforma de redes sociales se evidenciaron dos grupos discursivos, uno con una postura antivacunas y dos grupos que conforman el ala pro-vacunas. El ala pro-vacunas emplea diferentes métodos para difundir la voluntad de verdad a favor de la vacunación, con un grupo que utiliza el humor y los memes y otro grupo que utiliza predominantemente un lenguaje científico, periodístico y/o político. En el caso del grupo antivacunas, el discurso se basa en la desconfianza hacia las vacunas que combaten el coronavirus, especialmente la CoronaVac. Como limitación, se debe mencionar que la recopilación de datos se realiza a partir de un recorte de las redes sociales sobre un tema específico, lo que no refleja la totalidad del contenido presente en la plataforma sobre dicho tema.

Palabras clave: plataforma, vacunación, COVID-19, twitter, verdad, discurso

Introduction

The beginning of the COVID-19 pandemic was marked by the definition of another type of pandemic: the (mis)informational. Because of the reach of this phenomenon due to social media, the World Health Organization (WHO) has used the term "infodemic" since February 2020 to define the problem generated by false, incomplete, or out-of-context information about the virus and how to protect yourself from it. Initially, this problem was strongly linked to matters about "cures" for the disease (Araujo & Oliveira, 2020; Floss et al., 2022; Recuero & Soares, 2022; Oliveira et al., 2021). However, after the publication of preliminary research and the development of vaccines to fight the coronavirus, discourses containing disinformative messages on this topic spread widely due to their political and social relevance (Monari & Sacramento, 2021; Recuero & Stumpf, 2021; Recuero & Soares, 2022).

This paper presents the results of research on the discursive dispute for what is considered true in relation to vaccination against the coronavirus on Twitter[1]. It refers to the part of the research that seeks to analyze the formation of groups with antagonistic discourses on the subject on social media and analyze the production of will to truths perpetuated by these groups. In this sense, the objectives of this work are (1) to understand the types of will to truth in each discursive group and (2) to analyze the groups' statements based on the proposition of the analytical concept "platformization of truth" (Cotter et al., 2022). The research question that guides this work, based on the mentioned objectives, is: What is the relationship between the will to truth about vaccination against COVID-19 and the different discursive groups in the so-called society on the Twitter platform?

The Pan American Health Organization (PAHO) estimates that two to three million lives are saved annually due to vaccination (PAHO, 2019). This estimate predates the COVID-19 pandemic and refers to polio, diphtheria, tetanus, pertussis, measles, and influenza. In the first year of vaccination against COVID-19, *The Lancet* published a study estimating almost 20 million lives saved in 185 countries, 1 million of which in Brazil (Watson et al., 2022). Even with these data, the vaccination rates in Brazil began to drop from 2013 onwards (La Porta & Lima, 2022), thus research on the motivations for such an event is essential for finding possible solutions.

This research permeates concepts of communication, philosophy, and language and the epistemology of the sciences. One of the possible areas of study in Science Education, due to its interdisciplinarity, is the analysis of the impacts of social media platforms on the production of truths, which are responsible for guiding/questioning/denying scientific knowledge. In this sense, it is possible to state that the political and social reality affected by the worlds of the monitors (Pinto, 2005) has effects on the understanding of what is science. From this perspective, this work will seek to expose the relationship between the will to truth (Foucault, 1996) — which is one of the systems of exclusion of discourse, composing control procedures — and the platformization of society (Poell et al., 2020), seeking to highlight the narratives about vaccination against COVID-19 and the impact of disinformative messages on the constitution of beliefs about a desire for truth that guides science. This research required the creation of an analysis tool that borrowed one of the main modes of interdicting discourse and the updated and powerful concept of platformization, constituting the platformization of truth.

In order to discuss the objectives established for this work, the analysis was carried out on a set of 1,235,545 users who were shared on the network, using the retweet tool, with tweets that had the term "vaccine" or "vaccines", published between December 1, 2020 and January 17, 2021. The time frame is important because it comprehends the month in which the COVID-19 vaccination began worldwide until the day it started in Brazil.

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1 At the end of July 2023 Twitter's name was changed to "X". The data used in this research was collected before the platform was sold to the new owner, therefore the old name will be used.

Will to Truth, Speech, Scientific Disinformation, and Social Media

Science is a space of dispute of knowledge, which is constitutive/constituent of truths. Some truths change in time, and an example for this is the universal use of Claudius Ptolemy's definition, who described geocentrism — the Earth was the center of the solar system and the other celestial bodies revolved around it — in his book *Almagest*, between the years 138 and 161 after Christ (Toomer, 1998). This astronomical definition has been held true for over a millennium. In 1530, Nicolaus Copernicus, a Polish mathematician and astronomer, presented a Western mathematical model that demonstrated heliocentrism as true. By treating the sun as the center of the solar system, Copernican theory changed scientific, social, and cultural conceptions. Scientists Galileo Galilei, Johanne Kepler and Isaac Newton improved Copernicus' studies and, since then, it has been scientifically considered that the heliocentric model best represents the functioning of the solar system (Toomer, 1998).

From the above, it is possible to perceive changes in what is considered true, that is, the very concept of truth comes into dispute, which promoted a change of episteme regarding the functioning of Earth and human life. The concept of episteme appears as the expression of a historical ordering of knowledge, designating a set of statements, principles and rules that govern their distribution (Veiga-Neto, 2007). The change of episteme happens in relations of power/knowledge, a binomial assumed from the Foucauldian perspective, which is inseparable, and the link between this power and knowledge (Foucault, 2008). Therefore, it is in the episteme that what is true at a given time is said, and that the discourses possible to exist at a given period are developed. In addition, it is important to establish that, in this work, discourse is "a set of statements, to the extent that they are based on the same discursive formation" (Foucault, 2008, p. 132, free translation), which is also linked to history. Discursive formation is understood from the set of statements that form certain knowledge, typical of an episteme.

Here, it seems possible to use the concept of truth/will to truth (Foucault, 1996) to understand how the legitimation and dissemination of certain wills to truth become factual truths. For the author, this concept is one of the three exclusion systems responsible for controlling discourses, and is described as a set of rules taken as true, being an effect of power (Foucault, 2005). It is not possible to describe this concept without considering a certain historical moment or the institutions, as they are responsible for producing the effect of the third system of exclusion, because of the places of power they occupy, in which they disseminate specific knowledge.

Thus, from the perspective of position of power as a fundamental space for producing/consolidating/dispersing knowledge, it is necessary to consider what are the validations of the moment in which we live. For some years, research has been carried out on discredit in science and on scientific controversies, permeating themes that involve the denial of human responsibility for global warming (Leite, 2014), vaccine hesitancy (Gostin, 2014; Oliveira, 2020a) and Flat-Earthism (Alvim, 2017; Lima et al., 2019). It is possible to understand the reasons for these movements in the context of the

current historical moment, in which there is a crisis in epistemic institutions — research institutions, governmental bodies, legislations, etc. — (Oliveira, 2020a), which were established during the Enlightenment, with a positivist science that was positioned as responsible for the truths of our time and which aimed to have a character of neutrality and objectivity.

From a Habermasian perspective, social media can be understood as spaces of public sphere for some time (Bastos, 2011; Recuero, 2016). The public sphere, as defined by Habermas (1997, p. 107), "represents a supercomplex network that branches spatially into countless international, national, regional, communal, and subcultural arenas, which overlap with one another". In this sense, these are spaces in which speech acts are debated, refuted, and reproduced (Habermas, 1997), forming the "public opinion". However, the space of the "public opinion" is also a space for the contestation of narratives, and therefore, certain posts on social media are not mere speech acts, but utterances that shape different discourses fighting for space and recognition in order to establish the order.

It's worth noting that power relations are part of the construction of what is being discussed within the public sphere and "public opinion". This is because in the ritual of discourse (Foucault, 1996) what can be said is taken into consideration, and some discourses may be prohibited or authorized. For example, some time ago, with the legitimization of pro-vaccination discourse through the National Immunization Plan (NIP), it was not common to hear politicians and government officials actively opposing vaccination to prevent certain diseases. In 2020, with the beginning of the COVID-19 vaccination, this discourse was legitimized by the highest authority in Brazil at the time (Recuero & Stumpf, 2021).

Twitter was chosen for this research due to its characteristic as a space for discursive contestation (Soares et al., 2019), which tends to form two antagonistic groups. This space features the "retweet," a tool that generates the spread and recirculation of messages on the platform (Recuero et al., 2011; Recuero & Zago, 2012; Bruns & Moe, 2014), which is interesting to analyze when considering public political debates. These spaces can reinforce established discourses or propose new ways of framing certain topics, seeking to establish new truths. This also occurs due to interpretations of public events beyond the dissemination of (dis)information (Maireder & Ausserhofer, 2014; Soares, 2020), which makes Twitter a potential space for analysis.

The structure of the network is an important factor for understanding how this type of message is disseminated and indicates how the tools (such as retweets) of the platform intersect with the social, political, and cultural aspects. In this regard, the analytical concept of "platformization of truth" is proposed, based on the notion of platformization of sectors of society (D'Andréa, 2020; Poell et al., 2020).

Platformization of Truth

Updating research on the ways of understanding the truth and scientific truth of our time involves understanding how contemporary society exists in a more multidimensional world than what was previously used to. This implies understanding that beyond traditional modes of existence, there is another possible world that displaces and affects the traditional world, namely, the virtual world. Here, a specific focus is made within this broad and highly active academic and social field, concentrating on a particular aspect: the platformization of society (Poell et al., 2020).

In the perspective of this work, a platform is defined as "digital (re)programmable infrastructures that facilitate and shape personalized interactions between end-users and complementors, organized through systematic data collection, algorithmic processing, monetization, and data circulation." (Poell et al., 2020; D'Andréa, 2020). However, to address this concept as a process, the term "platformization" was developed and takes into account the society-shaping aspects that these structures possess beyond the perspectives of economic, governmental, and infrastructural processes (Poell et al., 2020).

This can be observed from the perspective of work, which has been adapted with the presence of bloggers, influencers, streamers, etc., but they reproduce societal dynamics such as gender hierarchies (Duffy, 2016; Poell et al., 2020; D'Andréa, 2020). Furthermore, Brazilian delivery drivers and app-based ride-sharing drivers, who are also platform workers, amount to over 1.6 million individuals (Brazilian Center for Analysis and Planning, 2023). In this context, along with the transformation of interpersonal and neighborhood relations facilitated by social networking platforms, cultural and social aspects are being shaped/altered/reinforced, highlighting the concept of platformization of society.

There is a Foucauldian concept that problematizes the relationship between truth and the will to truth and is characterized as one of the discursive controls. Given that, in this work, we analyse the plataformization of truths on social media platforms, this concept is tailored for the specific application of these platforms.

The primary purpose of the existence of discursive control procedures is to establish and wield power, with the perspective of creating conditions for the production of discourse in a manner that involves control, selection, and dissemination (Foucault, 1996). It's worth revisiting Foucault's definition of discourse, which suggests that this concept cannot be neutral as it is permeated by the desire of those who produce it, entwining power and knowledge. Furthermore, discourse can be understood as a practice that exists due to the formation of knowledge and is associated with non-discursive practices, conditioned by the historical moment in which one lives and a discursive formation (Foucault, 2008; Gregolin, 2007). There are two procedures for controlling discourses: external and internal, in addition to defining the conditions for the existence of these discourses.

The first procedure presents a fundamental process for the proposed concept, which is the process of exclusion of discourses (Foucault, 1996). The exclusion of discourses involves the principles of interdiction, which can occur through the privilege of who can speak, the taboo of the object (what is allowed and what is forbidden), and/or the ritual of circumstances (how a discourse can exist), the principle of separation, which constitutes ways of selecting discourses and subjects, and the will to truth, a concept already outlined in the theoretical framework, indicating the robust ways of authorizing a discourse as true (Foucault, 1996). For this work, we will start from the principles of interdiction and the will to truth.

In the case of interdiction, its three modes can be observed, for example, in a public speech by a politician. In this situation, it is necessary to select topics that belong to the category of interest to the public who elected the politician (taboo of the object). Additionally, there needs to be a manner of speaking that engages with this audience (ritual of circumstances) and is articulated by the politicians themselves — due to the weight/value of their speech — rather than by representatives or advisors (privilege of who can speak).

In relation to the principle of the will to truth, it can be exemplified through the topic of vaccination in Brazil. In the 1970s, policies for the eradication of diseases were necessary, and vaccines were the solution, but they faced popular resistance. Therefore, the National Immunization Plan (PNI) was created, and vaccination campaigns were conducted. In other words, public policies and government communication were used to ensure that the will to truth related to vaccine implementation was accepted. Another policy implemented to promote acceptance of the pro-vaccination discourse was the requirement for vaccination to attend schools and to participate in government social programs. However, during the coronavirus pandemic, another will to truth on the topic started to be disseminated by individuals holding positions of power in Brazilian institutions. In this case, the will to truth was that vaccines could potentially have a negative effect on those who received them (Mota et al., 2023; Recuero & Stumpf, 2022). Thus, this will to truth was disseminated in various discourses of the president of the country at the time, with the aim of turning this will to truth into a factual truth.

The procedures of subjectification, or the conditions of existence of discourses, are responsible for their control, creating rules for speaking and determining who can speak. The first of these procedures is the ritual, which signifies that there are criteria related to the expertise of the speaker, indicating the circumstances in which they can speak, the behaviors they must exhibit, and the set of signs that must appear in the discourses. The second procedure, the society of discourses, is responsible for preserving and/or producing discourses and distributing them strictly, making them essential for control, along with the mechanism of social appropriation of discourse, which involves their widespread distribution, such as through the education system. Lastly, the author defines the procedure of doctrine, which "binds individuals to certain types of utterance and consequently prohibits all others; but it uses, in return, certain types of utterance to connect individuals to one another and differentiate them, and thereby, from all others" (Foucault, 1996, p. 43). In other words, it has a characteristic of belonging.

With the aid of the concepts of discourse struggle and control through "truth" and platformization, the concept of "*platformization of truth*" is coined. The platformization of truth can be understood as a result of the conditions provided by platforms — and their respective adaptations proposed by users — which favor the dissemination and establishment of certain wills of truth as factual truths. Platforms, with their dimensions of datafication and algorithms, infrastructure, business models, governance, practices, and affordances, provide a fertile environment for specific discursive practices to be considered true. These discursive practices are influenced by principles of discourse exclusion — through interdiction and the will to truth — linked to the external procedures of discourse, and by the principle of doctrine, which is related to the subjectification procedure of discourse.

The platformization of truth is a concept created with the aim of understanding that on platforms in general, there is no production of hermeneutic knowledge, not even surface knowledge, and much less an epistemological concept on any subject. What exists is a systematic textual production, quite characteristic, which, in short texts, imparts information or disinformation aiming for a status of truth (factual or not), but always positioning itself in the territory of the true. This textual production is the result of political and social practices adapted to a reality in which society finds itself, where platforms are more than neutral spaces where a certain social interaction occurs; they are infrastructures permeated by capital, politics, and datafication.

It seems inevitable to have to deal with the will to truth, or in other words, scientific truths, disinformation embraced by a particular mass on social networks, the demands of political narratives, and the policies of truth, even when disseminated virtually, are created by individuals who are permeated by subjectivities and, as such, produce effects in the physical world. However, there are specific aspects to this adaptation of discourses, as there is the option to reproduce statements anonymously to avoid criticism and blame. Another fundamentally different factor is the ability to disseminate these truths, as with platforms, the principle of interdiction is remote, and being infrastructures controlled by private companies, there is no interest in favoring public sphere debates, but rather a financial and political desire that reinforces the power these companies hold.

In this sense, with these similarities and differences, the platformization of truth seems to be related to the concept of platform discourse. This is because, as seen earlier, discourse can be understood as a practice imbued with the formation of knowledge, which is associated with the unsaid, and both are intertwined with the historical moment in which one lives, stemming from a discursive formation. One can understand that practices imbued with knowledge are linked to the functioning of platform affordances, which can, for example, generate the mass dissemination of content; the association with non-discursive practices occurs under the assumption that platforms are neutral/apolitical/non-subjective; and the discursive formation could be related to the urge to reinforce beliefs in individuals predisposed to them, using tactics that impact emotions.

Methodological Proposal

As explained earlier, the objective of this work is to analyze what the will to truth regarding COVID-19 vaccination and discursive groups is in the so-called platform society, using the analysis types through the platformization of truth. To achieve the proposed goal, a mixed methodology was employed, which includes Social Network Analysis (Wasserman & Faust, 1994) as a quantitative aspect and the concept of platformization of truth as an analytical framework to qualify the debate.

Data Collection

The data was collected from Twitter (via Application Programming Interface [API]) using the Social Feed Manager (Prom, 2017) with the keywords "vacina" or "vacinas" by the Media, Discourse, and Social Networks Analysis Research Laboratory (MIDIARS). This tool is open-source software that collects social media data and connects to the public APIs of platforms to gather data. The data collection period used for this analysis was from December 1, 2020, to January 17, 2021. These dates are relevant for the research as it corresponds to the month when vaccination began worldwide and extend until the day when vaccination commenced in Brazil. In total, 1,235,545 tweets were collected. The data were analyzed quantitatively using the Gephi software (Bastian et al., 2009) with the metrics described as per Soares (2020).

Social Network Analysis

Social Network Analysis (SNA) is a method of analysis that assesses the structure of networks, meaning it is concerned with the relational factor among actors and the connections that constitute them, not focused on individual actors (Recuero et al., 2015). For the analysis, data from the following SNA metrics (Recuero et al., 2015) were used: i. Modularity, responsible for delineating the different groups in the network; ii. Weighted Average Mark, which indicates the level of activity considering the number of connections each group has; E-I index, which measures the level of external connections that each group possesses. The network is analyzed qualitatively from the 50 most shared tweets by the 50 most retweeted users on the subject, data provided from a clipping made possible by Gephi analysis software.

Results and Analysis

Based on the data presented earlier and the concepts introduced in the second and third sections of this paper, the results are analyzed in two separate subsections. The first subsection applies the analytical concept of platformization of truth, while the second subsection identifies the contexts of disinformation content within each group. Below, in Table 1 and Figure 1, the data for metrics used in the analysis are provided. Figure 1 was generated from the metrics in Table 1 and can be further understood by referring to Soares (2020).

Figure 1

Retweets Network
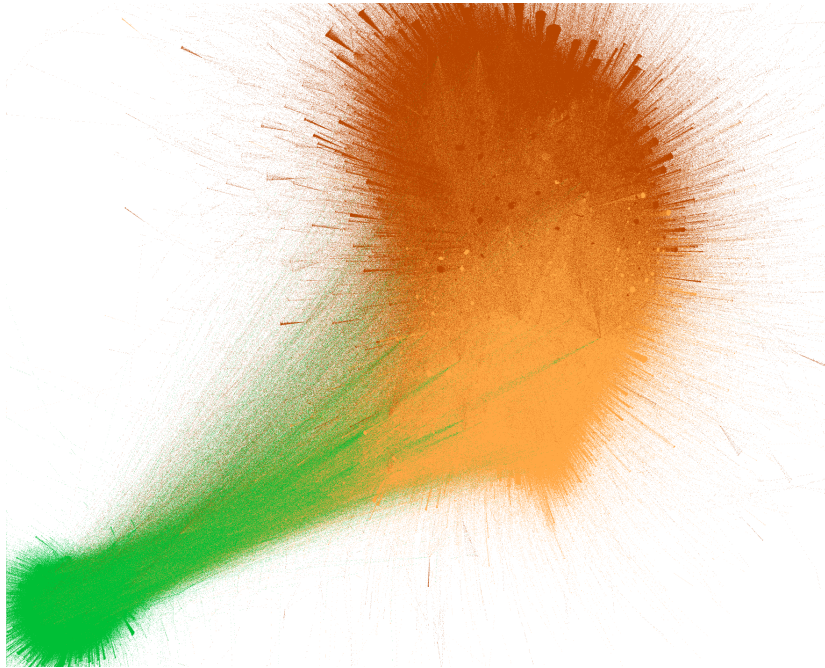
Source: self-made using the Gephi software.

Table 1

Network Metrics

Metrics	Network	Red Group (pro-vaccine)	Orange Group (pro-vaccine)	Green Group (anti-vaccine)
Knots	1,235,545	704,353 (57.01%)	427,400 (34.59%)	103,792 (8.40%)
Connections	4,442,190	1,371,187 (30.87%)	1,557,411 (35.06%)	930,479 (20.95%)
Average weighted mark	4,312	1,978	4,507	13,568
E-I index	-0.58	-0.43%	-0.46	-0.91

Source: Prepared by the authors.

The number of nodes indicates that the red group is the largest group in the network in terms of the number of users involved, followed by the orange group. These groups are considered pro-vaccine and are separated into two due to the degree of connection between nodes in the network, indicating that the content reaches different social niches. Together, the pro-vaccine group represents 91.60% of the users, while the anti-vaccine group — the green group — represents only 8.40%. In this sense, it is

possible to conclude that the majority of profiles belong to the pro-vaccine group during the analyzed period. However, the number of connections in the network and the groups indicate that there is a difference in the interactions conducted by each group. Even though the red group has the largest number of users, the orange group has a higher number of connections, indicating that it appears to be more active on the network. The green group, representing 20.95% of the connections, is still significant even though it has the smallest number of users, considering that it has nearly 10% fewer connections than the red group and nearly 14% fewer than the orange group. Furthermore, the pro-vaccine group is the majority in this aspect.

The average weighted mark reinforces the difference in activism in the networks of each group. The anti-vaccine group showed the highest average interaction per user, indicating an important role for this group in content circulation. Moreover, this data about users is significant for the formation of the polarized structure of the network (Barberá, 2020), as it suggests that this type of interaction favors the delineation of boundaries between groups (Soares et al., 2018).

The E-I index metric confirms that there are more internal connections than external connections in the analyzed groups. In this calculation, the anti-vaccine group stands out for having a value of -0.91, close to the maximum group isolation (-1), which can be interpreted as an indicator of radicalization (Soares, 2020). Furthermore, the values for the clusters that make up the pro-vaccine group were less negative, indicating an asymmetry in polarization (Soares et al., 2019; Recuero et al., 2021). The internal connections between the orange and red groups represent 12.1% of the total connections they make, while they have a connection value with the anti-vaccine group representing 0.9% and 0.11%. These data indicate the formation of echo chambers, which is a problematic network dynamic as there is a tendency to share only the narrative that suits the groups.

The Platforming of Truth in Antagonistic Groups

The polarized groups have a connection with emerging discourses in society since the social media platform is considered a space for public opinion, that is, it is a space that is part of the public sphere for discussion (Bastos, 2011; Recuero, 2016). Therefore, analyzing platformed truth in this environment is to understand the desires for truth (Foucault, 1996) that permeate society, understanding Twitter as conducive to the proliferation of discourses that seek to occupy the status of truth.

In order to identify the desires for truth of the different groups identified by the ARS, the texts from the 50 tweets of the 50 most influential actors in the network are separated (Table 2). The texts were divided according to the graph (Figure 1), that is, the pro-vaccine group between red and orange, and the anti-vaccine group alone. This division within the pro-vaccine group is interesting to be done because, despite the similar discourses, different forms of repercussion and dissemination of the specific will of truth are evident. The authors of the analyzed tweets are divided into (Table 3): anonymous

users, who do not individually influence public opinion; journalists/newspapers, which are journalistic institutions or journalist users associated with a newspaper; politicians, public figures who hold or have run for political office. Scientists/scientific institutions, who are individuals recognized for their affiliation with the field of science (professors, researchers, etc.) or recognized Brazilian scientific institutions; and content influencers, who are users with fame and influence through their presence on social media and, consequently, have the authority to influence discussions.

Table 2

50 Tweets Collected Separated by Groups

Tweets	Groups
25	Red (pro-vaccine)
13	Orange (pro-vaccine)
12	Green (anti-vaccine)

Source: Prepared by the authors.

The red group's main characteristic is to use humor and memes to disseminate, reinforce, and normalize the will of truth linked to scientificity in the prevailing discourse. Only seven out of the twenty-five publications contain strictly political content. In this sense, it is possible to identify a language associated with social media platforms to ensure that the content is disseminated by humor pages, beyond political pages. On the other hand, the orange group, also associated with the pro-vaccine group, primarily employs a scientific, journalistic, and/or political language. Of the thirteen texts, five emphasize the importance of vaccination as a public health issue, seven relate the political aspect to the occurrence or absence of vaccination, and one text refers to a news article. With this data, it is possible to identify the role of the expert (Foucault, 1996) — an external procedure of speech interdiction — as the main factor associated with the dissemination of these tweets with the favorably associated will of truth regarding vaccination.

Table 3

Account Type Associated with Groups

Accounts	Red (pro-vaccine)	Orange (pro-vaccine)	Green (anti-vaccine)
Anonymous	17	0	0
Journalists/Newspapers	0	3	2
Politicians	0	2	5
Scientists/Scientific Institutions	0	4	0
Content influencers	8	4	5

Source: Prepared by the authors.

Even though they have different characteristics of formation and dissemination, the platformized truth is mostly the same: the vaccine works and should be adopted. In other words, there is a tendency to reinforce a scientific discourse that has been disseminated and treated as true since the implementation of the National Immunization Program (PNI), which was responsible for achieving disease eradication rates (Temporão, 2003). In this case, there is also an identification of statements (Foucault, 2008) that are linked to this perspective: the valorization of researchers and health policies, in other words, the valorization and belief in epistemic institutions (Oliveira, 2020b).

In the anti-vaccine group, there is evident propaganda against vaccines, especially the CoronaVac, which is a vaccine associated with João Dória, the former governor of São Paulo. Contextually, in the political sphere, the actor was a rival to former President Jair Bolsonaro regarding the pandemic. The platformed truth in this case appears to be related to a distrust in epistemic institutions (Oliveira, 2020b) and the position of power held by a president (Foucault, 1996), along with a competition for recognition of a potential "solution" to the pandemic. In this sense, the discursive proposition regarding vaccination was that its efficacy in combating the coronavirus was not proven and that it was a "conspiratorial" object intended to undermine the desired truth. It is possible to relate this group to Bolsonarist political movements, as Jair Bolsonaro authored one of the most shared tweets on the network.

The text in the tweets tends to question the CoronaVac vaccine and presents a negative stance towards compulsory vaccination. In this sense, these statements can be understood as stemming from a perspective of a supposed "freedom of choice," which is linked to liberal discourse (Monari & Sacramento, 2021). Furthermore, there is an allusion to the vaccine and/or the virus being linked to China in a pejorative manner, which is connected to xenophobic discourse related to Chinese people (Recuero & Soares, 2022). Additionally, one can consider an anti-communist discourse that permeates the unsaid, as the conflict with China is related to economic models and political/economic/social perspectives that a government should have, given that the ruling party in China is the Communist Party of China. An example of content for each type of account is described below (Figures 2, 3, and 4).

Figure 2

Examples of the red pro-vaccine group

Accounts	Red (pro-vaccine)
Anonymous	"fear of the vaccine?? Babe, I drink sugarcane juice crushed in the van's engine"
Journalists/Newspapers	-
Politicians	-
Scientists/Scientific Institutions	-
Content influencers	"Babe, you used to drink cheap vodka with the ice from from the street vendor's cooler, handed to you by the same hand he gave you change in, during the peak of Carnival Saturday, and now you're afraid of the Chinese vaccine."

Source: Prepared by the authors.

Figure 3

Examples of the orange pro-vaccine group

Accounts	Orange (pro-vaccine)
Anonymous	-
Journalists/Newspapers	"All heads of state and government in countries where vaccination has started celebrated when the first person in the country received the vaccine. Some are right-wing. Others are left-wing. Democrats and autocrats. Only one international leader did not celebrate. Jair Bolsonaro, from Brazil. Why?"
Politicians	"Let's get this clear: Bolsonaro is not crazy. There is corruption in his government. There is corruption in his family. His government is awful and inhumane. Prohibiting vaccines, ending emergency aid, and advocating for torture is not madness. It's the behavior of someone who lacks character, indeed. "
Scientists/Scientific Institutions	"Vaccine is not medicine. Vaccination is a collective strategy. If you buy and get vaccinated and your whole environment does not get vaccinated, the virus can mutate and your vaccine is useless. Money thrown away. Do you know why WHO works to get all countries vaccinated?"
Content influencers	"Congratulations to the researchers who dropped out almost a whole year of their lives to work on a vaccine that will save many people who were left to die by the federal, state, and municipal governments. They performed a miracle in a context of the destruction of the university and funding"

Source: Prepared by the authors.

Figure 4

Examples of the green anti-vaccine group

Accounts	Green (anti-vaccine)
Anonymous	-
Journalists/Newspapers	On 12/17/2020, the Supreme Court declared war on the Brazilian population. Approved vaccine mandates without confirming the sanitary necessity of this extreme measure. The safety for the entire population will not be confirmed in the short term. The Supreme Court puts lives at risk and must be held accountable for it.
Politicians	"JOÃO DORIA'S CHINESE VACCINE — According to my Government, any vaccine, before being made available to the population, must be SCIENTIFICALLY PROVEN BY THE MINISTRY OF HEALTH and CERTIFIED BY ANVISA. — The Brazilian people WILL NOT BE ANYONE'S GUINEA PIG. (continued)."

Figure 4

Examples of the green anti-vaccine group (continuation)

Accounts	Green (anti-vaccine)
Scientists/Scientific Institutions	-
Content influencers	"URGENT -BUTANTAN'S REASON TO DELAY THE DELIVERY OF DATA ON THE CORONVC: Researchers noticed that the total number of infections in the participant group increased and exceeded the threshold of 151 contaminations, which was sufficient for the final efficacy analysis. THE VACCINE IS INEFFECTIVE"

Source: Prepared by the authors.

One can observe the trend of using platforms to reinforce specific wills of truth that favor the consolidation of certain discourses as true. In the case of the pro-vaccine group, the goal is to maintain a positive discourse on vaccination that has persisted since the implementation of the National Immunization Program (PNI). In contrast, the anti-vaccine group aims to change the paradigm regarding scientific truths about this topic. The consolidation of the battle for space in the public sphere with this topic is facilitated by platforms due to their infrastructure, data-driven nature, algorithms, governance, business models, and practices and affordances, which help in shaping a polarized and fragmented network, as indicated by the E-I index metric.

With the different beliefs disseminated in this space, it is possible to identify network dynamics as favorable to the platformization of truth. This is because, considering polarization (Soares et al., 2018) and echo chambers (Barberá, 2020), there is a tendency for the principle of the interdiction of discourse (Foucault, 1996) to be favored, and within each group, only the discourse that is agreeable to the audience is shared and reproduced. The taboo of the object, the ritual of circumstance, and the privilege of those who can speak (Foucault, 1996) can be identified in the texts, aiming to generate a more persistent dissemination of the wills of truth present in the analyzed documents that seek to be treated as factual truths.

Final Considerations

As the aim of this study was to discuss the relationship between the will of truth regarding COVID-19 vaccination and different discursive groups in the platform society on Twitter, two antagonistic groups were highlighted and analyzed (Soares, 2020). A cluster with an anti-vaccine character was identified, as well as two clusters forming the pro-vaccine group, and their dynamics were analyzed using the metrics resulting from the Social Network Analysis method (Recuero et al., 2015).

Furthermore, the metrics indicated that despite the anti-vaccine group being the smallest in the network, the level of activity performed by users belonging to this group in terms of message sharing is higher. It was also evident that the anti-vaccine group has a higher tendency to share content among themselves than the pro-vaccine

groups, indicating that this group is more closed and deliberately chooses not to share information from other groups in the network (Recuero et al., 2021). Each group connects with emerging discourses in society, as the social media platform is a space that contributes to the public sphere of discussion (Bastos, 2011; Recuero, 2016). Hence, platformed truth was analyzed in this environment to understand the wills of truth (Foucault, 1996) that permeate society, recognizing Twitter as a conducive space for the proliferation of discourses that seek to assume the status of truth.

The pro-vaccine groups (red and orange) exhibit different ways of disseminating the will of truth in favor of vaccination. The red group primarily uses humor and memes as their main characteristic to disseminate, reinforce, and normalize the will of truth associated with scientificity within the current order of discourse. The orange group, on the other hand, follows this process using a language primarily focused on scientific, journalistic, and/or political discourse. Even though they have different characteristics in terms of formation and dissemination, the platformed truth is mostly the same: the vaccine works and should be adopted.

In the case of the anti-vaccine group (green), the discourse is characterized by distrust in vaccines that combat the coronavirus, especially the CoronaVac, which was produced during the term of a political opponent of Jair Bolsonaro at the time. This is why it was possible to relate the anti-vaccine group to Bolsonarism. The platformized truth seems to be related to a distrust in epistemic institutions (Oliveira, 2020b) and the position of power held by a president (Foucault, 1996), as well as a competition for recognition of a possible "solution" to the pandemic. The proposal in the discourse was that the effectiveness was not proven in combating the virus and that it was a "conspiratorial" object.

The platforming of truth proved to be a powerful analytical tool, considering the historical moment in which we live. There seems to be an increasingly confirmed trend that the exercise of power permeates the existence of social media platforms since they started to directly influence the public sphere. Because they are controlled by foreign private companies, the platforms do not need to follow the rules imposed by Brazilian laws, which means that content may not respect the Constitution, and disinformation can be disseminated without restrictions. This is because polarization on the network, in a way, generates engagement and, potentially, profits for the companies. In this regard, there is room for questioning the consolidation of public spheres controlled by private sectors and the impact that this ecosystem has on the public sector and the formation of democracies.

Here, it is worth mentioning science education as a space to prevent and mitigate the impact that the current historical moment has on the construction of knowledge and expertise, especially on the impact it has on established scientific truths. It seems possible to say that this type of discussion should be part of individuals' basic education and highlights the need for the presence of researchers, scientists, and educators in positions of influence on social media platforms. Furthermore, science needs to be

critically incorporated into the debate, avoiding the perspective of absolute truths proposed by positivism but rather emphasizing the contextualization of individuals, historical contexts, and the conditions that shape these truths.

The limitations of this work include the data collection via the Twitter API, which has content limitations. Additionally, the chosen time period and keywords represent a specific subset of the analyzed topic and do not cover the entirety of the content related to this theme. Another important factor to consider is that the focus of the content analysis is on retweets, without taking into account other forms of engagement with the content. However, this specific focus was necessary for the qualitative analysis, which aimed to apply the analytical tool of platformization of truth. Furthermore, the analyzed content represents the content of the 50 most influential actors in the network, meaning it is relevant considering the influence that these discourses may have on the network.

Acknowledgments

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