
Miscellaneous

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Cyberactivism and Social and Political Participation Regarding the War in Ukraine: Analysis of Social Interactions in Spanish on Twitter

Abstract

To evaluate and understand the dynamics of citizen participation in social networks concerning the war in Ukraine and delve into the phenomenon of cyberactivism, this study focuses on the conversation generated in Spanish around the conflict on Twitter. The research analyses 1,138,747 original tweets to investigate the general characteristics of the conversation, the user interaction patterns, and the creation and structure of communities and to determine the connecting factors. The study employs machine learning and artificial intelligence techniques via the Graphext data analytics tool. The conversation volume is very high, but the network of interactions is characterized by being unstructured and dominated by white noise, with disjointed interactions setting the tone of the conversation. Verified accounts and emotionality stand out as factors of connection and interconnection in the network. This case study highlights a form of social and political participation oriented towards visibility and information about the cause at a level of deliberation and debate that shows empathy and sympathy in a context close to slacktivism.

Keywords

Political participation, cyberactivism, slacktivism, social mobilization, social networks, war in Ukraine, Russia.

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1. Introduction

As the most prominent platform ever imagined for media creation, the internet is universally accessible, free, and open, fostering a digital information ecosystem where social and political participation, which is key in any democratic society, takes on a new dimension. Participation is a democratizing factor, and therefore, facilitating and encouraging channels for such participation theoretically improves the health of a democratic system. This research, which is based on a case study of the conversation surrounding the war in Ukraine on Twitter, aims to delve into this phenomenon: what characteristics does participation have, what are the predominant interaction patterns, how are the generated communities, and what factors drive the conversation. The ultimate goal is to reflect on the phenomena of social and political activism online as well as the limitations of these phenomena.

Organizers and demonstrators commonly use social networks in civil protests worldwide to organize uprisings as a megaphone for their claims and to influence public opinion (Fernández Prados, 2012; Herrero, 2013). The work of Howard *et al.* (2011) on the Arab Spring highlights the importance of social networks on shaping the political debate regarding the uprisings in Tunisia and Egypt. It was found that revolutionary conversations on the networks preceded prominent on-the-ground revolts and helped disseminate the democratic ideas underlying the revolution.

In the pro-Russian protests in Ukraine in 2014, demonstrators' extensive use of networks favoured a high level of self-organization. Protesters used the networks to document what was happening, making it a massive social movement (Ronzhyn, 2014). The 11 March (11M) or the Indignados Movement (15M) are other examples in Spain that represent "other ways of relating and interacting, but above all of understanding democracy and political processes" (Burgos Pino, 2017).

Social networks allow for the construction of alternative narratives to dominant narratives in a participatory and horizontal manner (Sosa *et al.*, 2019). This phenomenon forces a reconsideration of online activism and the concept of social or political mobilization and participation.

2. Participation in the Digital Environment

The digital information ecosystem and new use and consumption habits of digital communication and information services have transformed traditional forms of social action and citizen participation. The virtual environment, characterized by the multiplication of actors and the possibility for any citizen to create a medium from which to express, inform, and interact, and the transformation of the interactive user –characterized by being a prosumer and by intensive, multidevice, ubiquitous accessibility– increases participation and shifts towards more flexible forms of organization that favour a broader and faster dissemination of messages and a greater capacity for connection and encounter. The logic of social movements, characterized by a deliberative effort to promote change (Wilkinson, 1971), transforms from collective action, understood as mobilizations to achieve common interests, to what some authors call connective action, characterized by new dynamics where interaction and sharing become the axes of the movement (Sola Morales, 2019).

It is not easy to establish a typology of forms of participation, especially in the digital environment. As Sola-Morales and Hernández Santaolalla state, participation encompasses a wide range of actions, including "varied practices such as belonging to a civic association, militancy in parties, adherence to social movements, among others" (2015). Currently, there is debate about the boundaries of online, unconventional, or noninstitutionalized participation.

The internet facilitates the conquest of public space, and visibility becomes the central element of a social or political movement. The strength of the conversation can become the axis of connective action in online participation.

2.1. *Cyberactivism*

Activism is defined as a set of actions aimed at social participation with a common goal, often related to the demands of civil society seeking to influence political decisions (Oliver, 1984). The internet, as a decentralized and flexible space that facilitates the circulation of ideas (Ramírez Morales, 2019), clearly becomes an ecosystem where new forms of citizen social participation, mobilization, and political action are incubated. Ugarte defines cyberactivism as “a strategy that seeks to change the public agenda, the inclusion of a new topic in the great social discussion, by spreading a certain message and its propagation through word of mouth multiplied by the media and personal electronic publication” (2007, p. 126). He adds that these can be temporary and ephemeral mobilizations. Burgos Pino defines it as a nonconventional form of political participation “whose use of technologies expands the fields of action, providing citizens, organizations, or social movements with the possibilities to act and mobilize in the public sphere through various communication platforms” (2017). Additionally, “as a strategy, cyberactivism is considered a nonconventional form of political participation that uses technology as an open field of action through various digital platforms” (Ramírez Morales, 2019).

These definitions focus on the visibility of a cause primarily through the dissemination of information to generate enough critical mass and debate that results in the collective expression of a cause, even if it does not result in new social consensus or perceptible changes that would require other types of actions (Burgos Pino, 2017). In this sense, anyone can be an activist, as Tascón and Quintana state, because one can easily support a movement or spread an idea that contributes to the general debate on a cause on the internet (2012). In this context, cyberactivism can occur spontaneously without intention and without organization.

The present debate in the scientific literature focuses precisely on defining the limits of cyberactivism. There is difficulty in “understanding and explaining new forms of political participation, often associated with the proliferation of digital technology, which is changing the way people view and engage with democracy” (Delfino, Barmendi & Zubieta, 2019, p. 197).

2.2. *Forms of Participation in the Digital Environment*

It is pertinent to include the definition of the public by Lingyan Ma and Yueqian Zhang, who perceive the public on social networks as “a collective group of individuals who rise with an issue, participate in the issue discussion and meaning creation, and take communicative actions on social media” (2022). These publics, as the researchers say, given the characteristics of the digital ecosystem, gain the power to cocreate meanings and rewrite dominant narratives. García Avilés defines activists as interactive users who adopt a vindictive attitude towards specific causes and usually have a high degree of ideological involvement (2018).

The research by Lingyan Ma and Yueqian Zhang segments the public of social networks according to their influence in the process of information dissemination into three groups, namely, provoking public, bridging public, and powerful public, which allow for a better understanding of user behaviour in digital activism, in this case, in China, a society with media censorship. The first could be celebrities, politicians, journalists, etc. They usually have many followers and show interest in various causes. The second are more numerous and have fewer followers but greater interest in the cause. The third has many followers and a particular interest in that specific cause. They highlight that the provoking public are the ones who monopolize the creation of meanings and the narrative about the topic (2022).

Vegh establishes three forms of cyberactivism: awareness/advocacy oriented towards raising awareness and promoting a cause, a phase in which a question is deliberated and debated; organization/mobilization aimed at organizing an online and offline action; and action/reaction, which consists of executing the action (2003).

Other lines of research focus on action frameworks, as Chihu notes (2004). On the one hand, there are diagnostic frames in which reality is interpreted as problematic and subject to change and a problem and even a culprit are identified; prognostic frames that propose

solutions; and motivational frames that seek stronger commitment and participation in corrective action. The study of action frames to analyse and understand the nature and characteristics of online participation is quite interesting.

Anduiza *et al.* (2010) noted that in a greater percentage of cases, the internet emerges as a space that reinforces previously existing traditional participation. This does not mean that it does not mobilize new participants.

Other perspectives consider that cyberactivism requires not only the dissemination of information about a topic of interest, even if it gathers many citizens and impacts public opinion but also demands organization and mobilization online and offline in real life and thus a high level of commitment to a cause (Arroyo, 2014).

García-Galera, Del Hoyo-Hurtado and Fernández-Muñoz emphasize the need to overcome the online-offline dichotomy in social participation and the need to talk about degrees of commitment or involvement because maintaining a reductionist view of cyberactivism is not good (2014).

Yañez (2015) notes that changes occur mainly in the mentality of citizens through awareness, that topics of interest are linked to emotionality, and that the level of commitment is low.

The new scenario transforms forms of participation, and what some authors call click-activism or clicktivism emerges (Gladwell, 2010; Morozov, 2011) as simple online actions that constitute a fleeting and superficial type of participation (Treré & Cargnelutti, 2014). Thus, they define it as “the minimum level of public commitment to the published information, which consists of simply clicking the ‘like’ button on posts or comments” (2014, p. 196).

On the other hand, Vázquez *et al.* (2020) address the concept of “slacktivism” on the basis of Nolan’s definition (2019). They characterize it as user support or rejection through expressions or measures that are not considered actual actions demonstrating a commitment or dedication that provokes change, so “for slacktivists, the most common actions are retweeting or sharing some information on their social networks, wanting to show their friends or contacts their attachment and follow-up to a cause” (p. 256).

Similarly, Córdoba Hernandez, after studying the #BringbackOur Girls campaign on Twitter in 2014, concluded that slacktivism, a standard on the web, is a valuable resource for raising awareness and visibility of a cause. However, this does not imply a transformation of sociopolitical structures.

Although slacktivism does not imply conventional political commitment and is limited to participating concretely, directly, and independently in social media, it can ultimately call for actors with the ability to intervene in a cause-to-action.

Martínez and Piñeiro (2018) analyse the relationships between different political communication agents on Twitter, identifying conversation archetypes with their community structures. On the basis of the relationships among different political parties, they determine the presence of three types of communities: strongly hierarchical structures, dispersed communities, and heterarchical networks.

Interestingly, this latter type of heterarchical community is characterized by a decentralized flow of information. Similarly, Aguilera *et al.* (2013) introduce the concept of white noise in their study on political activism in networks. They categorize it as a random, unstructured conversation without any correlation over time.

In line with this type of conversation regarding social movements on Twitter, some authors precisely catalogue the fleeting nature of this social network concerning relevant events in history and its transient nature, which aligns with one of the fundamental traits of contemporary digital society (Orbegozo *et al.*, 2022).

Regardless of the online-offline debate or the level of commitment and nature of the actions, digital activism or cyberactivism is a phenomenon that transforms the logic of traditional activism.

2.3. Social Media in the Public Sphere and the Role of Twitter in Activism

The impact of social media on “creating a state of social opinion with significant repercussions in the realm of institutional politics” (Gozálvez, Romero & Larrea, 2019) and boosting activism in the digital environment is undeniable. García-Galera, Del Hoyo-Hurtado and Fernández-Muñoz state that social media has increased young people’s participation in the digital environment in areas such as solidarity and civic purposes, thus encouraging engagement and mobilization beyond the digital ecosystem (2014, p. 42).

Twitter is the predominant political and social network because of its ease of publishing brief comments and spreading them widely, enabling informal and spontaneous interaction and allowing for listening and direct conversation (González-List, 2022). This is why all political actors are on Twitter.

The work of Makhortykh and Sydorova analyses how social media is used to frame the Ukraine conflict. Examining visual framing on Twitter, Instagram, and YouTube, they conclude that social networks have been used to create a narrative highlighting Ukrainian suffering and Russian aggression, but more studies are needed to determine how these visual frames impact public opinion (2017). Similarly, Lange-Ionatamishvili and Svetoka (2015) assert that the strategic communication of both countries and other external agents, such as the US, affects the evolution of the conflict and its public perception. They note how social networks amplify messages and become debate platforms. This same research points to manipulating public opinion through the dissemination of misinformation, which aligns with the findings of Boyte (2017), who noted the propagandistic use of social networks in conflicts via bots, trolls, and misinformation to control public perception of the conflict. As Varol, Ferrara, Davis *et al.* state, bots are very present on social networks, particularly on Twitter, and represent a significant part of these platforms’ overall activity, thereby significantly impacting conversations (2016 and 2017).

The risk of spreading false news on social media is significant because, as Vosoughi, Roy and Aral (2018) report, this type of content captures more public attention, spreads more easily and quickly, and has a more significant societal impact.

Other studies focus on using social media to aid those affected by conflicts. The work of Talabi, Aiyesimoju, Lamidi *et al.* (2022) on Nigerian refugees affected by the Ukraine-Russia conflict analyses the use of storytelling on social media as a valuable tool for raising awareness and helping affected individuals access the assistance they need by connecting them with organizations.

The scientific literature acknowledges the reach of social media in international conflicts, with risks and opportunities for all involved agents, direct and indirect actors, victims, and affected individuals, governments, organizations, and journalists (Sacco & Bossio, 2015; Gonzavez, Romero & Larrea, 2019). This significant reach stems from being a powerful tool that can control public discourse and shape public opinion (Prier, 2020) to the point of being used as a weapon of war due to the risk of digital propaganda, as in the case of the Islamic State (Nissen, 2014).

After conducting a literature review on political participation on Twitter, González-List highlights the importance of addressing research on everyday political interaction “that happens 24/7 on Twitter among ordinary users, unknown to the public” (2022, p. 147).

3. Objectives and methodology

To evaluate and understand the dynamics of citizen participation in social networks concerning the war in Ukraine, this study examines the conversations generated in Spanish regarding the conflict on Twitter (now X).

The specific objectives are to study the general characteristics of the conversation, user interaction patterns, identification of connection and interconnection factors, and community structure.

The study seeks to answer the following questions:

RQ1. What is the everyday political interaction of users on the network around an event of general interest? What are the characteristics of the conversation?

RQ2. What are the interaction patterns of the network? What shape does the network take?

RQ3. What factors mark the connections and interconnections between actors?

RQ4. Who are the actors that participate the most, and what is the structure of their interactions?

RQ5. What form of cyberactivism predominates in the studied case?

The data analytics tool Graphext, an online platform for extensive data analysis via machine learning techniques, was used to conduct the exploratory research. This tool was chosen because it allows the analysis of Twitter conversations with powerful data management functions using the Louvain algorithm, which is applied to evaluate a dataset (García, 2022). In this way, data can be visualized and explored by extracting distributions of each variable, cross-filters, and group variables and performing necessary groupings for the proposed analysis, which is in line with other studies that have used the same tool (Mosquera *et al.*, 2024; Marcelo, 2022; García, 2022; Herrero-Solana & Faba-Pérez, 2023; González-Álvarez *et al.*, 2020; Rey & Izquierdo, 2016).

For this study, a total of 1,138,747 original tweets about the war in Ukraine published from December 24, 2021 to May 24, 2022, were extracted. All tweets containing one or more terms were selected: Zelenski, Putin, #GuerraUcrania, and #UcraniaRusia. The analysis period covers three months before and three months after the Russian invasion of Ukraine on February 24. Only original tweets are included, excluding replies, mentions, and retweets. The data were extracted via the social network analysis software Tractor (Marcelo-Martínez & Marcelo, 2022). This software performs web scraping, meaning that it automatically extracts information directly from Twitter. For this analysis, a database in Excel format was generated. This database contains relevant variables for each tweet (Mosquera *et al.*, 2024). The generated database was uploaded to Graphext, where relevant analyses were applied to find significant data and answer the set objectives.

Three types of analyses were conducted to process the data and address the objectives. The first analysis (topics) describes the main characteristics of the conversation about the entire dataset. The second and third analyses (key community members and community connections) provide a more exhaustive description of the central nodes and categorize the different communities in the conversation. For these two types of analyses, 50,000 tweets were extracted through simple random sampling. The specific approach of each analysis is presented below:

3.1. Topic Analysis

In an academic context, this refers to a natural language processing (NLP) and machine learning approach that identifies and groups the main topics in a text dataset, such as social media posts. This approach allows researchers to understand and identify quickly key ideas and conversations on digital platforms. Each cluster is labelled according to the most common and significant terms present in the associated text.

3.2. Network Analysis (Key Community Members)

This methodological approach focuses on the key individuals driving digital conversations by identifying and grouping the most influential individuals. The key variables of this analysis are degree, cluster, and interaction rate. The degree refers to the number of connections a user establishes within the dataset (conversation), while the cluster groups authors according to their similarities. The interaction rate calculates the average number of interactions an author receives divided by their followers. This analysis allows us to understand user behaviour regarding the conversation and determine connection and interconnection factors (variables with the highest correlation), explaining what unites users within the conversation.

3.3. *Community Connections Analysis*

This approach identifies interconnected authors (clusters) through communication patterns. It provides a detailed understanding of the dynamics and structures of different communities in a conversation and helps identify opinion leaders, discuss topics, and disseminate information within these groups. This analysis is based on the calculation of centrality and betweenness centrality. The former calculates the average between the number of times others have mentioned that person and the number of times they have mentioned other users. The latter measures the degree of influence of a profile within the analysed network. This analysis allows us to delve into the role of the most active and followed users in the conversation and the structure of relationships among users.

4. Results

4.1. *Characteristics of the Conversation-Topic Analysis*

4.1.1. Volume and Topics in the Conversation

The volume of the conversation within the studied timeframe comprises a total of 1,138,747 original tweets. Regardless of the concentration or dispersion of topics, the peak activity of the conversation (24% of the dataset) corresponds to the period from February 22 to 27, 2022, coinciding with the invasion on February 24. The peak of the conversation lasted for three consecutive days.

The main clusters from the analysis (20 out of 44) were selected to identify the themes around the war, representing 92% of the dataset. The results show that the conversation revolves around the figure of Biden, representing 22% of the total. However, there is a dispersion of topics from the start of the invasion. In April 2022, attention shifted to the figure of Zelenski, representing 21% of the total.

4.1.2. Content Analysis of the Tweets with the Most Impact on the Conversation

A representative sample is taken from the total original tweets in the conversation, considering those tweets with the greatest impact. To establish an impact criterion, all tweets exceeding 100 retweets are filtered. From this sample, it is evident that most tweets are concentrated in the cluster related to Zelenski. Additionally, 67.11% of the impact sample emanates from nonverified users. However, most viral tweets belong to verified accounts (those confirming the authentic identity of the user, as well as those that are relevant and active).

4.1.3. Analysis of Verified Users with the Most Activity in the Conversation

This case includes a sample of the most active users in the conversation (the highest number of published tweets). The total sample amounts to 12,501 users. This sample includes all authors in the third quartile of the distribution (Q₃), corresponding to 25% of the dataset, under the specific criterion of each user's activity. Importantly, Q₃ of the distribution corresponds to all publications between Q₃ and Q₄ (from 75% to 100%) for each specific study variable. Q₄ corresponds to this variable with the peak activity. Therefore, Q₃, which includes the most representative sample, is analysed.

The verified accounts with the highest activity in Q₃ correspond to media outlets, mainly Latin American, particularly from Venezuela and Argentina, and influential journalists with a large number of followers: @lapatilla (Venezuelan digital newspaper); @El_Cooperante (Venezuelan digital newspaper); @CaraotaDigital (Venezuelan digital newspaper); @infobae (Argentinian digital newspaper); and @infobaeamerica (Argentinian digital newspaper).

Specifically, regarding these verified users from Q₃, an analysis of the tweets with the greatest impact is conducted. The most mentioned users are identified as Venezuelan journalists, Argentinian journalists, and the Ukrainian president himself: @fuenteseliz (Venezuelan journalist from *El Cooperante*); @CarlosCanacheMa (Venezuelan journalist and politician);

@rodrigezanaisa (Venezuelan journalist); @OniRivas91 (Argentinian journalist); and @ZelenskyUa (president of Ukraine).

4.1.4. Sentiment Analysis

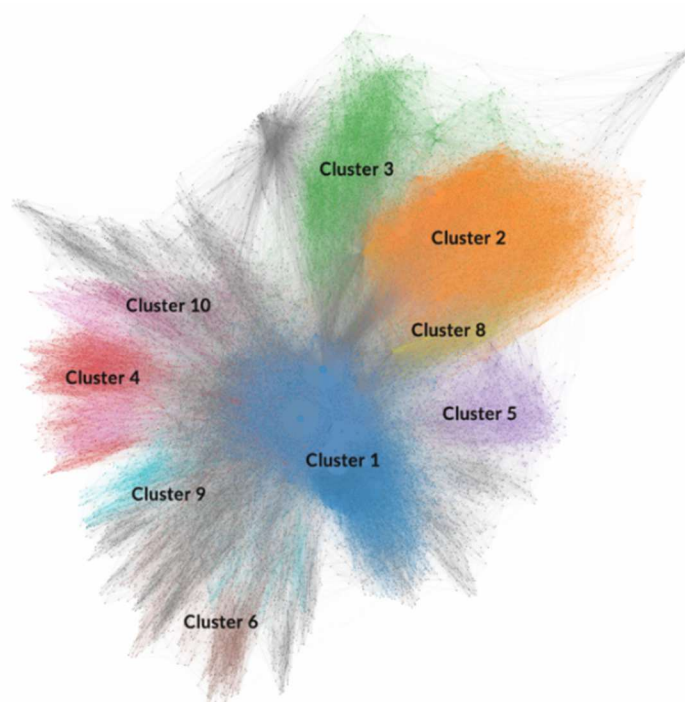
This variable describes the degree of user satisfaction with respect to the topic of discussion. It is a semantic analysis of concepts that includes three possible categorizations, i.e., positive, negative, or neutral. In this case, the highest percentage of tweets in the conversation corresponds to a negative sentiment (65.65%), compared with 29.92% neutral and 4.43% positive tweets. A representative sample was taken from the original tweets, considering those tweets with the most responses in Q₃ of the distribution (25%). In this selection, negative tweets represented 69.58%, neutral tweets represented 26.14%, and positive tweets represented 4.28%. Therefore, tweets with negative emotions generated more responses.

4.2. User Behaviour Regarding the Conversation–Network Analysis (Key Community Members)

A key community member analysis was conducted to delve into user behaviour in the conversation. This analysis allows us to understand the phenomenon of participation and comprehend how users behave. It studies how users relate to each other to identify the most connected and, therefore, the most impactful in the conversation. In this way, it is possible to determine factors that favour connection (among subjects from different clusters) and interconnection (among subjects from the same cluster) in social and political participation.

The starting point was determining the clusters. The variables introduced for sample segmentation are the degree (number of connections an author has in the dataset) and the engagement rate (average number of interactions an author receives divided by the number of followers). The grouping of the subjects is presented in the following network visualization.

Graph 1. Network of Connections between Nodes.



Source: Graphext.

The analysis reveals 30 clusters grouping a total of 31,158 users (out of the 50,000 nodes in the sample, the tool selected 31,158 for cluster analysis because they are the points with relevant information for segmentation). The largest cluster contains 7,752 nodes, whereas the smallest cluster contains 40 nodes. For a specific analysis, the four most significant clusters by the number of subjects they group, representing 62% of the sample, are considered. This selection is intentional because it represents more than 50% of the sample and allows for the analysis of how the conversation is managed.

Table 1. Distribution of Main Clusters.

Cluster	Percentage	Number of Nodes
Cluster 1	25%	7,752
Cluster 2	22%	6,801
Cluster 3	9%	2,945
Cluster 4	6%	1,868

Source: Own elaboration based on data extracted from Graphext.

In the analysis of each cluster, the variables with the highest correlation were determined, allowing for an in-depth understanding of the factors that explain the connections and inter-connections among subjects.

The conversation in Cluster 1 (the largest cluster) is very general and is based on the most significant terms, which are Ukraine (54%), Russia (30%), Russian (28%), or war (28.9%). The most significant nouns are Putin, Ukraine, Russia, and Zelenski. The general sentiment is negative. The most notable aspect of this cluster is that it includes the most verified accounts (11.65% in Cluster 1 versus 3.8% of verified accounts in the total dataset), which can be interpreted as the presence of official accounts of media, institutions, organizations, companies, and other actors such as politicians or celebrities, likely setting the general tone of the conversation, the main lines of the narrative, and the predominant sentiment.

The conversation in Cluster 2 remains very general, but the topics are more heterogeneous and distributed. This cluster is characterized by a higher degree of emotionality in the conversation, as this variable is significant as a connection factor in the analysis. A total of 92.99% of the tweets are negative, whereas 5.32% are positive and 1.69% are neutral. When the emotionality connecting the subjects in this group is explored further, the term “Putin” generates the most emotional comments, both negative (20%) and positive (1%), highlighting the predominantly negative image of Putin as an element of interconnection within the group.

The variable that best defines Cluster 3 is neutrality. It is a general conversation where the dominant terms are Zelenski (18%), Ukraine (15%), and Russia (9.6%).

In Cluster 4, the interconnection factor is the debate over the more international perspective of the effects of the war. The most relevant nouns are NATO and Spain, and the sentiment remains negative.

An analysis of the connections and interconnections among the subjects reveals that the users in Cluster 2 are the most interconnected and that the users with the highest number of published tweets and connections are in Cluster 1. The most neutral tweets generate the lowest degree of interconnection, occurring only among themselves.

Table 2. Analysis of the Connections and Interconnections in the Main Clusters of the Conversation.

Cluster	Factor	Typology	Description	Number of Nodes
Cluster 1	Visibility	Connectivity	Most of the conversation is driven by verified accounts that address the topic in a general manner, with moderate interest and negative sentiment, giving high visibility due to the high level of connections and setting the emotional tone.	7,752
Cluster 2	Emotionality	Interconnectivity	A significant part of the conversation is marked by a high level of emotionality, which links users more firmly within the conversation, resulting in a higher degree of interconnectivity.	6,801
Cluster 3	Neutrality	Interconnectivity among themselves	A minor part of the conversation shows general interest in the topic without emotionality, generating no significant connectivity or interconnectivity except among themselves.	2,945
Cluster 4	Depth	Connectivity	The smallest part of the conversation is linked to a desire to delve deeper into the phenomenon.	1,868

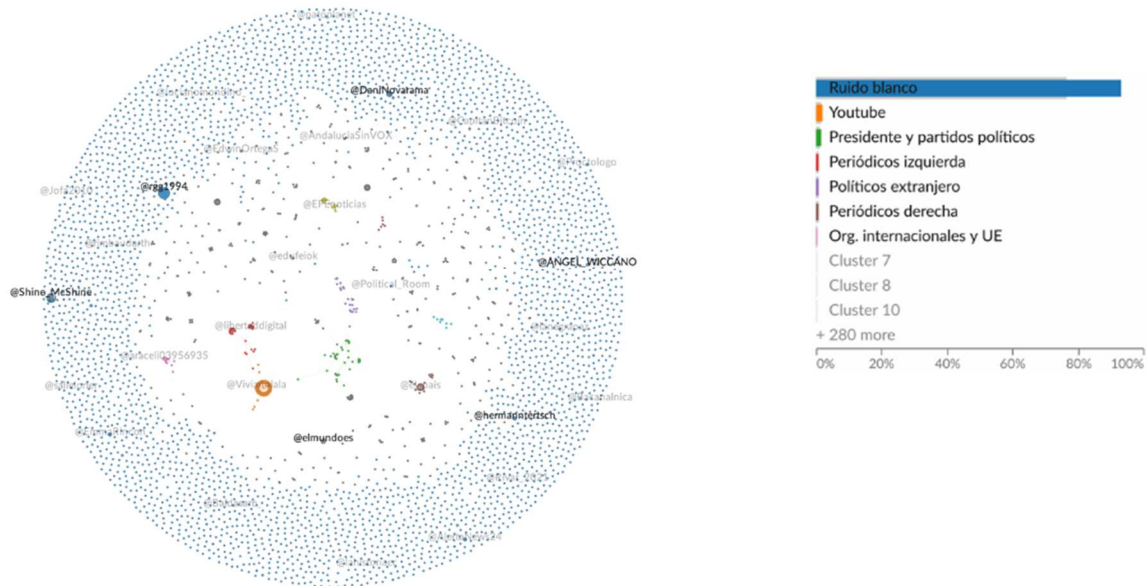
Source: Own elaboration based on data extracted from Graphext.

4.3. *Community Network and White Noise—Community Connections Analysis*

In this particular analysis, different communities in the conversation are identified by grouping users who are connected, i.e., users who have had some interaction (retweeted, favourites, or replies). From this classification, a total of 769 communities emerged from the analysis.

Notably, the largest user group is called “white noise,” with 25,771 users (77%), characterized by nodes with low interaction. The rest of the communities are significantly much smaller and have a low level of connection. For example, the second largest group in terms of the number of users contains only 590 compared with the 25,771 in the “white noise” community. Therefore, these results reflect that the conversation is neither organized nor does it have solid and structured communities around the war in Ukraine on Twitter.

Graph 2. Community Network and White Noise.



Source: Graphext.

Considering this premise, when delving into the most significant communities by the number of users (those exceeding 200), a typology of users with more excellent connections and more impact on the conversation is identified. In this way, we observe that these are verified accounts of media outlets, politicians, parties, and international organizations as the most influential nodes.

The following table shows the users with the highest connections and impacts in the central communities. After white noise, the largest community is generated around YouTube, followed by the community centred on the President of the Government of Spain and some political parties. Next, in this order, are other communities around left-wing newspapers, foreign politicians, right-wing newspapers, and international organizations.

Table 3. Central Communities in the Conversation.

Type of Community	Highlighted Users	Number of Users	Representation
1 White Noise	White Noise	25,771	77%
2 YouTube	YouTube (mentioning YouTube account)	590	2%
3 President and Political Parties	Pedro Sánchez, Podemos, Vox, PSOE (Political parties)	346	1.03%
4 Left-Wing Newspapers	<i>Eldiario.es</i> , <i>Público</i> , <i>CTXT.es</i> , <i>Infolibre</i> , <i>@caval100</i>	322	0.96%
5 Foreign Politicians	Potus, Biden, Nicolás Maduro	250	0.75%
6 Right-Wing Newspapers	<i>Libertad Digital</i> , <i>El Debate</i> , <i>VozPopuli</i> , <i>El Independiente</i>	250	0.75%
7 International Organizations and the EU	UN, NATO, Macron	217	0.65%

Source: Own elaboration based on data extracted from Graphext.

5. Discussion and conclusions

The study of the conversation generated on Twitter around the war in Ukraine has allowed us to delve into a little-explored field, i.e., the functioning of everyday political interaction on social networks (González List, 2022) as a means of citizen participation. This study deepens our understanding of the evident use of social networks as a channel for citizen expression and as a space for organization, communication, and mobilization. The interest lies in understanding how this space works, what drives it, and what impact interaction on social networks has in the social sphere, as well as its framing within cyberactivism.

The study of the dynamics and processes of citizen participation around the war in Ukraine, a specific event at a given time, highlights that social networks, specifically Twitter, are where citizens turn to express themselves when they feel called upon by matters of general interest. The case study confirms how the internet facilitates participation (Ramírez Morales, 2019), especially considering the extent of the conversations generated, given the number of nodes involved and the number of messages (Sosa, Galarza & Castro, 2019). In this sense, we can consider this specific case as a form of cyberactivism from the perspective of Burgos Pino (2017), who considers that while mobilization can be temporary and ephemeral, as in this case, it is characterized by the use of the internet as a field of action that allows citizens to express themselves collectively about a specific cause on digital platforms, even if these are unconventional forms, primarily aimed at visibility, information dissemination, creating critical mass, and debate.

By delving into the characteristics of the generated network to further explore interaction patterns from the perspective of community creation, white noise dominates, meaning an unstructured conversation –flexible, fluid, and delocalized– characterized by the predominance of nonverified accounts, anonymous citizens versus recognized social agents. It forms a heterarchical network (Martínez & Piñeiro, 2017), where an intense flow of information can be observed, drawing a uniform mesh-shaped graph without prominent leadership. Additionally, the intensity of white noise is temporary, growing significantly on the critical date and days close to the invasion, reflecting the fleeting nature of the unstructured conversation and showing the transient nature of the citizens' call to action in response to issues of international significance (Orbegozo, Morales & Larrondo, 2022). These users are the ones with the most publications, but at the same time, they generate the most minor engagement. Citizens express their thoughts but do not react –the retweet rate is meager– and do not generate connections, thereby limiting the capacity to redistribute content from anonymous citizen accounts. Messages do not flow within or outside the network. The concept of white noise noted by Aguilera *et al.* (2013) when analysing social self-organization in the context of social networks and political activism is confirmed in this study, reflecting fractal scaling in the form of noise in different activist communication processes. This white noise corresponds to spontaneous protests, which are entirely random, without correlations over time and without structured or coherent patterns. This is another fundamental characteristic of the conversation in this case.

The predominant content of the general conversation reveals a negative stance towards Putin, which dominates most of the conversation. This network, more than a digital conversation understood as a dialogue with a broad distribution of topics and perspectives, focuses on a specific element of the phenomenon, in this case, the negative sentiment towards Putin. The cohesion does not lie in connection or interconnection but in the meaning and sentiment of the shared expression, underpinned by a cohesive message in an unstructured, decentralized, and unarticulated network. It manifests a broad and generalized shared expression, allowing for the observation of the representation of a social, political, or cultural phenomenon or a public figure. In this sense, it underlies a vindictive attitude, typical of such conversations (García Avilés, 2018).

The value of these interactions lies not in the nodes of the network, their interactions, or their structure but in the predominant message reflecting the collective imagination. It highlights the centrality not of the user but of the message or context. It represents the construction of the narrative in a horizontal and participatory manner (Sosa *et al.*, 2019).

This form of social action is fundamentally based on citizen expression, which, in this case, is shared. The connective action is not as closely positioned in connection or interconnection as it is in constructing a shared message. In this sense, this form of citizen participation can be considered a basic level of cyberactivism in that it allows for the dissemination of a shared message, the collective dissemination of a cause (Burgos Pino, 2017). In this specific case, this type of participation does not seem to imply other types of actions or online and offline mobilization. It is more situated in a diagnostic framework, identifying a problem and even a culprit rather than a prognosis or mobilization (Chihu, 2004). In this sense, Lingyan Ma and Yueqian Zhang's (2022) idea of the "bridging public" extends to anonymous citizens who construct narratives without being linked primarily to recognized social agents such as media, parties, politicians, or opinion leaders. They amplify a topic's importance and place it in the collective imagination by sharing discourse and information about the topic.

This case study brings the everyday political conversation closer to a form of slacktivism, where a large group of citizens reacts and becomes a motor for visibility and opinion, which, although not provoking forms of online or offline mobilization with direct effects on the course of the phenomenon, can establish a narrative and a shared sentiment that impact the social and political sphere by representing the collective imagination of a cause.

While it is true that the cluster with the greatest presence in the conversation corresponds to white noise, the rest of the communities generated around the subject of study allow us to delve into the phenomenon of community construction around a topic within everyday political discussion and determine connection and interconnection factors within the conversation.

Verified accounts, corresponding to social and political agents such as media and journalists, generate more content and address general topics with negative but insignificant emotionality and a greater degree of connection. In certain groups, verified accounts are a determining factor in guiding the conversation and creating emotionality. Verified accounts are essential in driving the conversation on general interest topics but are not the only source capable of setting the agenda. The visibility, primarily from verified accounts, produces more excellent connectivity, corresponding to provoking the public, who monopolizes the creation of meanings and narratives.

Emotionality is a significant factor of interconnection, whether negative or positive. Although intensely emotive networks are less numerous, they generate more interconnections than do neutral emotional networks, which does not generate interconnections, even if they interact. We can affirm that emotionality, primarily from nonverified users, produces greater interconnection.

In conclusion, the main connection factor is the active role of verified accounts, in this case, first, the YouTube platform, followed by politicians and media outlets. The connection facilitated by the role of verified accounts translates into diffusion and visibility of the phenomenon and sets the tone of the conversation. However, the main factor of interconnection is sentiment, making emotionality key to generating impact.

This case study has allowed us to delve into the everyday political interaction of citizens around a matter of general interest. When faced with topics of general interest, citizens feel called upon and use the social networks where they are present, in this case, Twitter, to express themselves and share their views of the event. This unstructured form of participation is generally characterized by being spontaneous, unorganized, and temporary; the conversation peak coincides with the event's most significant and impactful moment. This type of participation, fundamentally represented in white noise, reinforces the idea that citizen political conversation is unstructured and can be considered a low level of cyberactivism characterized by the collective expression of a cause that fundamentally results in the visibility of the cause and the broad and rapid dissemination of information and opinions. The connections generated are flexible, fluid, and delocalized. The connective strength of the network primarily comes from the role of verified accounts, politicians, media, and communication platforms, and other recognized social

agents, who are fewer in number but have more followers and monopolize the narrative construction, which is amplified and magnified quantitatively by the number of actors participating in the conversation and qualitatively by the emotional charge of citizens and grassroots activists.

Although social network analysis has grown significantly and there are increasingly more AI-powered software tools for data processing, there are limitations related to the research process. On the one hand, limitations related to data quality may be incomplete or misleading due to the possible presence of nodes from spam, fake profiles, or bots. Another limitation stems from the tool's difficulties in understanding the context of the content, such that language nuances can interfere with sentiment analysis or possibly introduce bias into the sample from keyword selection to discriminate cases. Despite these drawbacks in data analysis, platforms are working to improve social research. In the case of Twitter, as García (2022) noted, they have hired specialized personnel to better understand how researchers use their data and are also conducting studies on controversial topics, such as how personalized algorithms amplify political content (Huszár *et al.*, 2021).

Other limitations may be related to the scope of the analysis, as it does not consider other perspectives, such as the global analysis of the conversation in other languages or extending it to a broader temporal range. This would allow for a better understanding of the dynamics of citizen participation in the evolution of the conflict. In any case, part of the value of this research lies in the use of an innovative methodology that allows for addressing such studies from a new dimension.

This study corresponds to a specific moment in time and a specific event. Considering the constant evolution in the dynamics and processes of citizen participation in the digital environment, it would be interesting to extend this study longitudinally over time to appreciate the evolution and most significant changes in the phenomenon of cyberactivism. It would also be beneficial to apply this same methodology to other case studies with similar characteristics to compare the results.

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