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X Hashtag Discussions during Electoral Campaign in Lebanon: Catalysts for a Public Sphere or Seeds of Elitism, Fragmentation, and Polarization?

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ABSTRACT

The use of Hashtags in political discussion on X has become paramount in any political event, specifically in electoral campaigns. The Hashtag tool on X has allowed anchoring messages within a thematic context, enhancing visibility and propagation of electoral content while enabling conversations among strangers and facilitating ordinary users to participate. This article aims to assess whether political discussions on X during electoral campaigns can forge a public sphere or instead reproduce traditional elitist closed networks, as well as fragmented and polarized online debate spaces, thereby extending public sphere theory to Middle Eastern hybrid media systems. The methodology consists of network and content analyses based on the Hashtag #انتخابات_لبنان (Lebanese elections) during the Lebanese legislative elections of 2018. Results revealed that elites, such as journalists, political experts, politicians control discussions with a low presence of influential ordinary users, resulting in limited inclusivity within the network. The network analysis also identified multiple opposing clusters within it, leading to fragmentation but not isolation, as certain communities still communicated with each other. The content analysis of tweets indicated that counterproductive posts predominate in online political debates, which harms the quality of exchanges and the formation of a public sphere. While a digital public sphere exists, it remains incomplete and limited. The main factors contributing to this *état des lieux* are algorithms and AI, the Lebanese political and media systems, and the lack of media literacy. Although these aspects are often regarded as the culprits, if enhanced, they might as well serve as potential solutions.

Keywords: *Social media, hashtags, public sphere, political communication, algorithms.*

INTRODUCTION

Social media platforms, including X (formerly Twitter), have become crucial in political communication, especially during electoral campaigns (Gilardi et al., 2022; Jungherr, 2023; Kelm et al., 2023). Politicians, journalists, and citizens have invested in these virtual spaces to exchange information, debate, and persuade. For politicians, the use of digital platforms aims not only to communicate, but mainly to increase visibility (Bene et al., 2022) and to attempt to control the diffusion of information within networks (Hameleers & Minihold, 2022). For journalists, particularly political journalists, X is regarded as a source of information, a tool for monitoring public opinion, and an instrument to improve their networking with various publics, especially politicians, emphasizing the growing interdependency between journalists and the platform (Hernández-Fuentes & Monnier, 2022; Molyneux & McGregor, 2022). On the citizens' side, users can easily select their sources of political information and participate in political online discussions (Akobiarek & Puyok, 2024; Azwar & Kho, 2022). Thus, X with its many features -

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notably hashtags - offers new spaces for different actors to inform, to be informed, and deliberate on these issues. Much research (Bruns, 2023) has consequently suggested that these new spaces could generate a renewal of the public sphere as theorized by Jurgen Habermas (1992). According to Habermas, a public sphere is an intermediary deliberation space that promotes public debate by emphasizing reason and the exchange of well-informed arguments, allowing the formation of a constructive dialogue where ideas and opinions challenge and enrich each other (Matelart & Matelart, 2018). Inclusion and the quality of debate are two significant dimensions emphasized by the Habermassian definition of the public sphere. Therefore, virtual discussions on X should ensure participation from all users, without the exclusion of ordinary users. In addition, a digital space cannot become a public sphere without the existence of conversations contributing to high quality debate, based on rationality, constructiveness, and interactivity. To achieve this kind of space, virtual networks should not be controlled and influenced solely by the elite (politicians, journalists, experts) and the level of discussion among all users should as well reflect the characteristics mentioned earlier.

A hashtag is a keyword preceded by a hash symbol (#) in a tweet to enable users to communicate and explore content based on specific themes (La Rocca & Boccia Artieri, 2022). Hashtags act like "imagery frontiers" that define specific spaces of dialogue (Dagoula, 2019). Hashtags can hence help diffuse and expand a topic online, making it easier for users to see a subject, participate in the discussion, and elaborate their own opinions about it by using the same hashtags: "with the use of a relevant hashtag, a user might intentionally be trying to reach beyond her immediate circle of followers and contribute to a larger 'issue public' concerned with the topic to which the hashtag is referring" (Jungherr, 2015, p. 40). Consequently, the hashtag feature on X might create the conditions for the construction of a public sphere based on inclusion and high level of deliberation: "tweeting to a topical hashtag resembles a speech at a public gathering...of participants who do not necessarily know each other, but have been brought together by a shared theme, interest or concern" (Bruns & Moe, 2014, p. 18). If this is the case, Hashtag discussions could be considered innovative for political communication, enabling horizontal communication between all actors (politicians, journalists, and citizens) and increasing citizen inclusion and participation in political debates (Anom & Vina, 2024; Chadwick, 2017). On the contrary, if hashtag discussions are concentrated among a certain elite of politicians and journalists, maintaining a top-down communication with ordinary users (citizens), it leads to the reproduction of the same power relations among actors both offline and online (Dagoula, 2019), eliminating any chance for citizens' inclusion in the public debate.

The study aims to explore the nature of hashtag political discussions and the main actors participating in these dialogic networks. The main question is whether these networks allow for more participation, deliberation, openness and inclusion for all users or, on the contrary, if they remain restricted to a few actors, fragmented and characterized by poor quality debate. In the first case, these virtual spaces could be considered as public spheres; in the latter, they would be regarded as reproducing offline and traditional power and communication structures. The study will focus on a Lebanese hashtag network, #انتخابات_لبنان (Lebanese elections), on platform X during the 2018 parliamentary election. The main aims are to identify the principal actors within the network who play influential roles in this virtual space and second to analyze the quality of the debate among users in the same network. This leads us to two sub questions for the research:

RQ1: Which actors are controlling and directing the information flow and the political discussions surrounding the hashtag #انتخابات_لبنان?

RQ2: Are discussions within the network distinguished by high quality dialogue?

These research questions will be examined using the theoretical frameworks of networks and the Habermassian public sphere. Through this approach, the study broadens public sphere theory to Middle Eastern hybrid media systems, theorizing a *platformed, segmented public sphere* in which visibility amplifies but influence remains concentrated.

In Lebanon, less than one year before the elections, the social media consumption had reached 72% (Poushter, Bishop & Chwe, 2018) and 52% of Lebanese users were consuming digital platforms as a news source (Ibid, 2017). X is not the leading platform in terms of consumption in Lebanon, and its user base reaches nearly half a million out of the 5.3 million Lebanese population (World Bank, 2023). However, X remains an important space for political topics (Weismueller, 2022), and certain studies have observed an increase in tweets during political events (Rasmussen & Petersen, 2023). X (formerly Twitter) has rapidly become a platform for politicians, activists and even politically engaged citizens (Jungherr, 2015). Thus, the platform is positioned as "a site for the potentially rapid emergence of politically engaged publics that may include ordinary citizens, political actors and professional journalists" (Burgess & Bruns, 2012, p. 385). In Lebanon, in fact, more than one year after the parliamentary elections, 24 million tweets in Arabic with the hashtags "Lebanon" and "Lebanese protests" were published on X during the major wave of popular protests that began in Beirut on October 17, 2019 (Siegel, 2021). Therefore, it is interesting to identify the actors participating online in political events such as elections or protests and to study the quality of their discussions.

LITERATURE REVIEW

The emergence of political discussions online has demonstrated the political uses of social media platforms, which have proven efficient in rejuvenating democratic participation and supporting a participative public space adaptable to different cultures (Batorski & Grzywińsk, 2018). This has allowed the engagement of marginalized groups or minorities into political conversations, therefore offering a new space for political participation (Kaskazi & Kitzie, 2023). Users who are not part of the political or media elite have the opportunity to comment, criticize and potentially disrupt traditional media agendas and framings (Gilardi et al., 2022). According to Chadwick (2017), non-elite users are capable of modifying the meaning and the flow of information, as a result, shaping online political debate despite the presence of elite actors. Some studies have also revealed that social media discussions were not ultimately doomed to become echo chambers but were also an opportunity for any users or outsiders to join and politically participate (Nyhan et al.,2023; Vaccari & Valeriani, 2021). In political campaigns, politicians and citizens were even more active and interactive with each other in online discussions (Peeters et al., 2023), and candidates were communicating with the public more than the rest of the political elite (Bracciale et al., 2021). For politicians, platform X has allowed them to communicate directly with citizens and to circumvent traditional gatekeepers of mass media (Dunaway & Graber,

2022). Some findings have also demonstrated a very strong presence of nontraditional actors on X during political conversations (Casero-Ripollés et al., 2022).

Other studies have contradicted the findings mentioned earlier by revealing a tendency among politicians to converse online more with other politicians and with journalists than with ordinary users (Schumacher et al., 2023, Keller, 2020). Traditional actors, such as politicians and journalists, hence, dominate the online discourse (Castro-Gonzalez et al., 2024). For journalists, platform X is one of the most significant additional sources of information used in journalistic production, given the regular and close interactions between them and politicians (Metag & Rauchfleisch, 2017). From their sides, politicians tend to interact with journalists online to gain more media coverage, visibility, and influence on citizens:

> Politicians are journalists' natural partners in the political communication process, especially during election campaigns. Journalists report more often and more positively about politicians they have personal contacts with (Van der Goot, Van der Meer, & Vliegen, 2021). Further, establishing two-way communication with journalists gives politicians the opportunity to influence public and media policy (Adamczewska, 2024, p. 26).

Consequently, social media platforms such as X are not adopted as a tool for deliberative discourse by politicians since interaction with citizens remains trivial and unprioritized (Jungherr, 2016). At the level of political discussions on digital platforms, political actors tend to exacerbate fragmentation by introducing and focusing on different topics and emphasizing on differences within the matters being discussed (Heiberger et al., 2022). Diverse studies have indicated that political conversations online are mostly clustered into communities where users tend to interact more with liked-minded individuals and less with people holding opposing views, thereby creating separated and polarized communication spaces (Esteve-Del-Valle, 2022; Ecker-Ehrhardt, 2023). In addition, some studies have focused on the quality of interaction and political conversation between politicians and users, as well as among users themselves, concluding there has been an increase in uncivil language, negative tone, and harassment, particularly during political events or on specific topics, leading to a poor-quality debate (Hasell et al., 2025; Rosenberg et al., 2023; Frimer et al., 2023; Trifiro et al., 2021). Much of the interactions might as well appear superficial: "it seems more plausible to conceptualize Twitter as a communication environment for phatic statements in reaction to political events than as a deliberative space for the exchange and debate of political arguments" (Jungherr, 2016, p. 78).

In fine, the platform X with all its structural features, has been examined as a new form of the Habermassian public sphere (Bruns & Highfield, 2016). Theoretically, its structure is open and flexible, enabling a horizontal communication process among users of various societal positions, allowing them to deliberate on political issues (Dagoula, 2019). However, the quality of conversations, the threats posed by homophily, fragmentation, polarization, and the lack of inclusion have raised questions about the capacity of the platform to forge a true public sphere (Dagoula, 2019). Studies on the Arab public sphere questions whether online debates reconnect citizens to political participation and how inclusive these spaces really are (Mohamed et al., 2019).

METHODOLOGY

The methodology is first based on a network analysis of tweets with the hashtag #انتخابات_لبنان (n=31,496). Rather than focusing on individuals and their attributes, the network analysis highlights relations and interactions between individuals: "the network perspective looks at a collection of ties among a population and creates measurements that describe the location of each person or entity within the structure of all relationships in the network" (Hansen et al., 2020, p. 32). The main goal of this analysis is to analyze the structure of this network, to evaluate and identify major and influent users. It will determine which individuals dominate and orient the flow of information during the electoral campaign, the ones that are key actors in terms of influence, gatekeeping, relaying, and spreading information. By achieving this, it will enable to determine if the structure of the network promotes a more open and flexible communication, or on the contrary, if it reproduces traditional and hierarchical models of communication dominated by an elite of journalists and politicians (Himelboim et al., 2017). The tweets were a posteriori collected from TrackmyHashtag, a social media analytic tool, for the duration of the electoral campaign (from February 5 to May 5). The tool provides both the tweets and their metadata in Excel file format, which were imported into NodeXL Pro. This software was used to calculate and visualize key social network and graph metrics. The network and graph metrics utilized in this research are explained in Table 1.

Table 1: Network and graph measures for network analysis

Network metrics	Description	Implications for network or actors in the network
Density	Measure the interconnectivity of actors within the network.	• Density is between 0 and 1. • High density: individuals are highly connected within the network. • Low density: individuals are poorly connected.
Average geodesic distance	Measure the average of the shortest path between two actors within the network.	• High average: slow propagation of information among individuals in the network. • Low average: rapid propagation of information among individuals in the network.
Centrality measures	Identify important and influent actors within the network.	
In-degree	Incoming relations/links Twitter users that are mentioned, retweeted, or replied to	High in degree: Popular / influencer / conversational hub.
Out-degree	Outgoing links/number of tweets sent out by a particular user.	High out-degree: Active tweeter / aims to reach user's attention / high level of engagement.
Betweenness	measures the number of times a Twitter user lies on the shortest path between other users.	High betweenness: actors are considered bridges or gatekeepers as they have the ability to influence the flow of information within the network.
Closeness	Measure the distance of a user in relation to all others in the network.	High closeness: User that can reach other users very quickly / closest to all in the network.

The network analysis will consist of identifying different clusters within the network using the Clauset-Newman-Moore algorithm which is integrated into NodeXL. This algorithm will detect multiple communities, and the study focuses on the most significant ones. These sub-groups within the network consist of nodes (individuals) that are significantly more connected to each other than to nodes outside the group (Hansen et al., 2020). On X, such communities are formed when users mostly interact with certain accounts through replies, retweets or mentions (Himelboim et al., 2017). Consequently, they become more exposed to information shared within members of their own cluster than to information from outside their communities. When communities within the same network, holding different political opinion views, fail to interact with one another, this leads to polarization and fragmentation of the network. Concepts such as "filter bubbles" and "cyber-balkans" are usually used to describe this phenomenon (Hansen et al., 2020). The measure of modularity, calculated by the software NodeXL, further indicates the extent to which the network is divided into clusters, with values varying from 0 to 1.

The network analysis is completed by analyzing content of a randomly selected sample of tweets (n=6000) from the studied network. This method aims to provide a thoughtful examination of the caliber of discussion between the network's participants. The quality of the debate is a sine qua non for improving citizen deliberation and constructing a public sphere. The study has adopted an analysis grid with pre-constructed dimensions based on several studies carried out to analyze the quality of discourse in political communication (Esau et al., 2021; Reveillhac, 2023). We drew inspiration from these studies to determine and define the dimensions to consider for evaluating the quality of deliberation. The dimensions are classified into two main categories: dimensions that are productive for a quality debate and those that are counterproductive. The first category includes the following dimensions: rationality, interaction, construction, and the expression of positive emotions. The equality dimension was excluded due to its complexity in terms of empirical operationalization and measurement. Furthermore, the equality dimension relates to the inclusiveness of the debate, specifically the capacity of a debate on X to include or exclude users. Thus, this dimension is already accounted for in the network analysis, which measures the network centralization, influential actors, and marginalized users. Positive expressions were integrated as a dimension based on the work of several authors who highlight the necessity of emotional expressions in contributing significantly to public debate. Such expressions can stimulate passionate and dynamic deliberation, encouraging more active citizen participation (Esau et al., 2021). The second category, counterproductive for a quality debate, comprises four dimensions: incivility, lack of foundation, expression of negative emotions, and irrelevance. These dimensions are thoroughly explained in Table 2.

Table 2: Analysis scheme for the content of tweets with the hashtag #انتخابات_لبنان

	Dimensions	Sub-dimensions	Description
Productive to quality debate	Rationality	Informative character	Detailed and relevant information about the discussed topics
		Justified arguments	Opinions or affirmations supported by facts or sound reasoning
	Interaction	Questions/replies	• Mentions to obtain additional information or clarifications • Replies to mentions or to other user's comments
	Construction	New angle of discussion	New perspectives or ideas in the debate, enabling progress in discussions
		Proposal of solutions	Suggestions to solve political issues or situations
	Expressions of positive emotions	Joy, hope, pleasure, satisfaction, and compassion	Reactions that express optimism, joy, and other positive feelings
Counterproductive to quality debate	Lack of foundation	Non supported arguments	• Non justified affirmations lacking facts or clear logic. • Publications containing jokes, irony, or sarcasm
	Incivility	Attacks, insults and harassments	Aggressive, offensive, and disrespectful publications
	Expressions of negative emotions	Anger, indignation, and fear	Publications with negative reactions such as anger, frustration, fear, and other negative emotions
	Irrelevance	Out of context	Publications not related to topics discussed such as spam, nonpolitical ads

RESULTS AND DISCUSSION

The analysis has first revealed the participation of 14,674 users to the discussions within the network with the hashtag #انتخابات_لبنان during the studied period and has indicated 43,849 interactions. In addition, 97.6% of tweets included mentions, while 2.66% were replies. Of the localized tweets, 26.01% originated from Lebanon, although 67,05 % of tweets were not localized due to users not enabling location settings. After Lebanon, the majority of localized tweets originated from Iran (1.65%) and from Saudi Arabia (0.82%), two regional powers supporting opposing parties during the campaign.

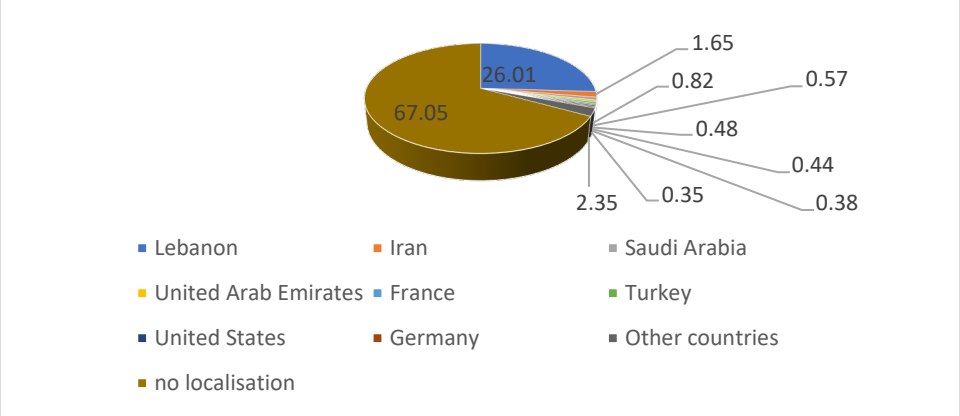

Figure 1: Percentages of tweet localization by countries

The results revealed a weak network density (Table 3), indicating that most of the users are not directly connected to one another. This also shows that the diffusion of tweets and information does not occur through direct connections but rather via a group of influential users, often referred to as hubs. Their strategic position and high number of connections within the network allow them to amplify messages. A weak density also indicates the presence of sub-networks, better known as communities within the network, which are connected by bridges (users) linking the different clusters together.

Table 3: Network metrics

Network measurements	**Results**
Graph density	0.000083
Average geodesic distance	5.995098
Maximal geodesic distance	19

Although the network exhibits weak density, the average geodesic distance demonstrates that information flows relatively quickly, requiring an average of six intermediary nodes (users) for information to reach any users. In addition, the maximal geodesic distance is 19, meaning the longest path of information flow between two users is 19 steps within the network. This suggests that the structure of the network corresponds to a “small world” type of network (Travers & Milgram, 1969), where despite weak density, information continues to propagate efficiently via central hubs. As a result, information can still reach anyone in the network within a limited number of steps (on average six), even given the size and complexity of the network. The network analysis identified influential actors within the network. As shown in Table 4, the users with highest in-degrees are predominantly from the media, political, academic, and artistic fields. A high in-degree, in this context, indicates that these users are highly popular in the network, frequently referenced by others through mentions, replies, and retweets. Among the top 25 in-degree users, only three accounts belong to ordinary users. However, two of these accounts appear suspicious, as they either no longer exist or exhibit characteristics of fake profiles, such as using fake profile pictures or having more than one account on X. The remaining top in-degrees

are journalists, political experts, politicians, or media organizations. Among the politicians identified are Saad Hariri, Paula Yacoubian, and Joumana Hadad. Lebanese media outlets such as LBC television and Al Akhbar newspaper, also play a significant role as influential actors within the network, alongside prominent journalists such as Yazbeck Wehbeh, Nadim Koteich, Christine Habib, Jamal Cheaib, and Eyad Abu Shakra. Additionally, many top influential actors were non-Lebanese, including individuals of Syrian, Saudi, Emirati, and Iranian nationalities. This notable presence could potentially accentuate fragmentation and political polarization among users.

Table 4: Top 25 accounts with high in-degrees and out-degrees

In-degrees	Type of actors	Out-degrees	Type of actors
amjadt25	Political expert	AlJadeed_TV	Media
najwakaram	Lebanese singer	EmilAntonios	User
JHaddadOfficial	politician	Toufiicc	User
AlakhbarNews	Media	Mhassanieh2	User
Christine_Habib	Journalist	cherikchadori	User
yaminpour	Expert in law	MuwatenL	User
Counselkremlin	Fake account	asfoorplus1	User
YazbekWehbe	Journalist	Hassoun	User
PaulaYacoubian	Politician	Salwaabouchacra	Journalist
mshinqiti	Political activist	lbelections2018	Organization
kasimf	Journalist	Abbad_2018	User
eyad1949	Journalist	themoon19661	User
LuaLuaTV	Media	alhajjar11111	User
IsraelPersian	Israeli-Persian account	Lebanon24	Media
JamalCheaib	Journalist	ShamsWNour	User
NadimKoteich	Journalist	AliAkbarMoham19	User
AlghamdiProf	Expert in history	MZahrakazemi136	User
oharkous	Journalist	kollounawatani_	Political Alliance
Omar_Madaniah	Journalist	EmadDgfl	User
Alii_Wehbi	User	aljadeedfan	Media
saadhariri	Politician	AlakhbarNews	Media
fakihn	Producer	MireilleSaliba5	User
LBCI_NEWS	Media	mnabou	Journalist
allouch88	Does not exist	noir_arcenciel	User
elissakh	Lebanese singer	NoorhanneKh	User

The nodes with the highest out-degrees (Table 4) within the network are mostly ordinary users who frequently tweet to attract the attention of politicians and media via mentions, replies, and retweets. These users primarily aim to interact with influential and well-known personalities, without significantly engaging with the rest of the network.

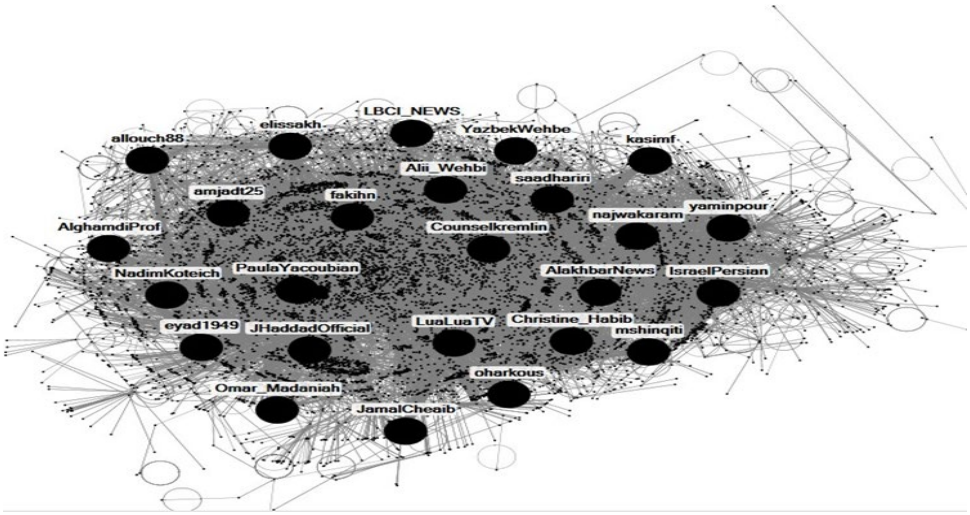

Figure 2: Visualization of users with the highest in-degree in the network

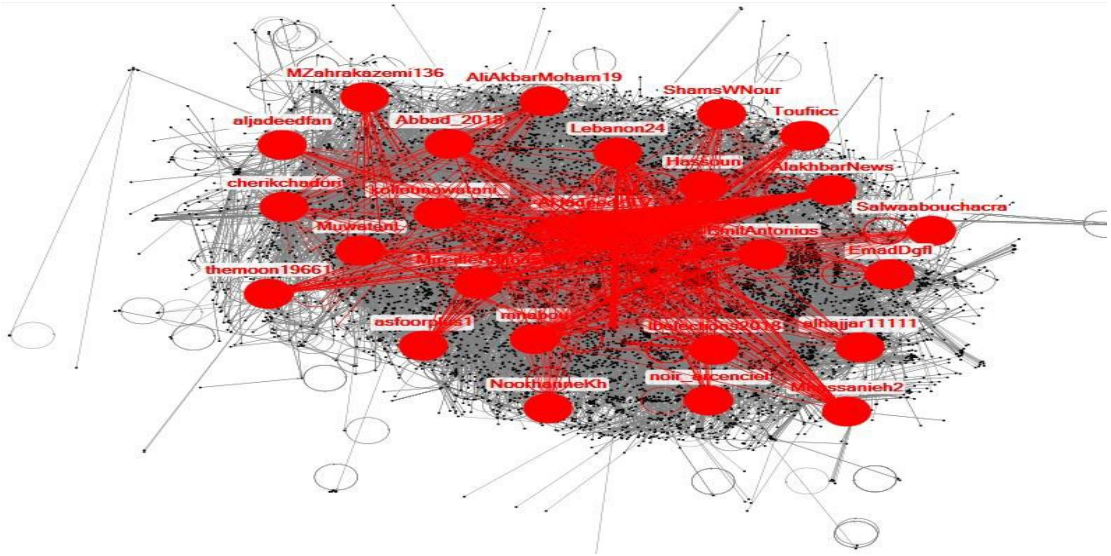

Figure 3: Visualization of interactions among the top 25 users with high out-degrees in the network

Table 5: Top 25 accounts rank by betweenness and closeness centrality

Betweenness centrality	Type of actors	Closeness Centrality	Type of actors
amjadt25	Political expert	LBCI_NEWS	Media
AlakhbarNews	Media	Christine_Habib	Journalist
EmilAntonios	User	YazbekWehbe	Journalist
LuaLuaTV	Media	AlakhbarNews	Media
LBCI_NEWS	Media	PaulaYacoubian	Politician
Christine_Habib	Journalist	Abbad_2018	User
najwakaram	Lebanese singer	saadhariri	Politician
IsraelPersian	Israeli-Persian account	EmilAntonios	User
SFallahpour	Journalist	mnabou	Journalist
PaulaYacoubian	Politician	Ameen_media	Media
AdelAlhusainy	Politician	Mhassanieh2	User

BBCArabic	Media	JHaddadOfficial	Politician
oharkous	Journalist	oharkous	Journalist
saadhariri	Politician	Mulhak	Media
wddahaladab	Journalist	dianamoukalled	Journalist
eyad1949	Journalist	Annahar	Media
asfoorplus1	User	salemzahran05	Journalist
JHaddadOfficial	Politician	LBCILebanon	Media
YazbekWehbe	Journalist	RimaNjeimShow	Journalist
Ameen_media	Media	Toufiicc	User
Alii_Wehbi	User	Hassoun	User
EmadDgfl	User	Salwaabouchacra	Journalist
Toufiicc	User	fawaztk66	User
Israa_Alfass	Journalist	MokhtarGhazzawi	User
Annahar	Media	wddahaladab	Journalist

Among the top 25 users with high betweenness centrality (Table 5), only four are ordinary users, while the remaining are media outlets, journalists, politicians and experts. These actors play an essential role in controlling and managing information flows and conversations within the network. They act as bridges, facilitating the diffusion of information from one cluster to another and creating connections between sub-groups that would otherwise remain disconnected. Therefore, they enable the circulation of information among different communities and possess the capacity to filter news, thereby influencing the public opinion of other actors. In terms of closeness centrality, only six out of the top 25 are ordinary users whereas the remainder belong to the political and media elite. The latter receive information more quickly and can reach others more efficiently within the network due to their proximity to other users. Their ability to rapidly disseminate information gives them a significant power of influence over other actors in the network.

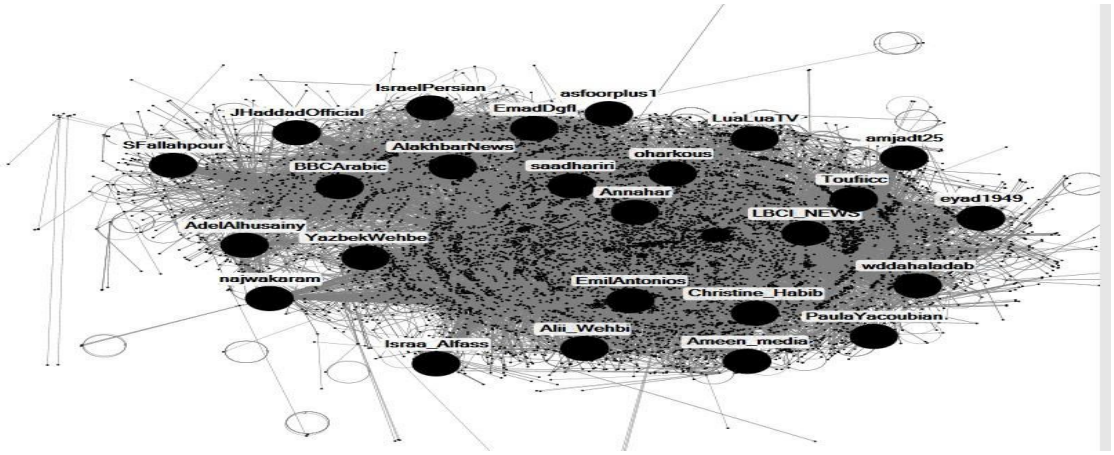

Figure 4: Visualization of users with the highest betweenness centrality in the network

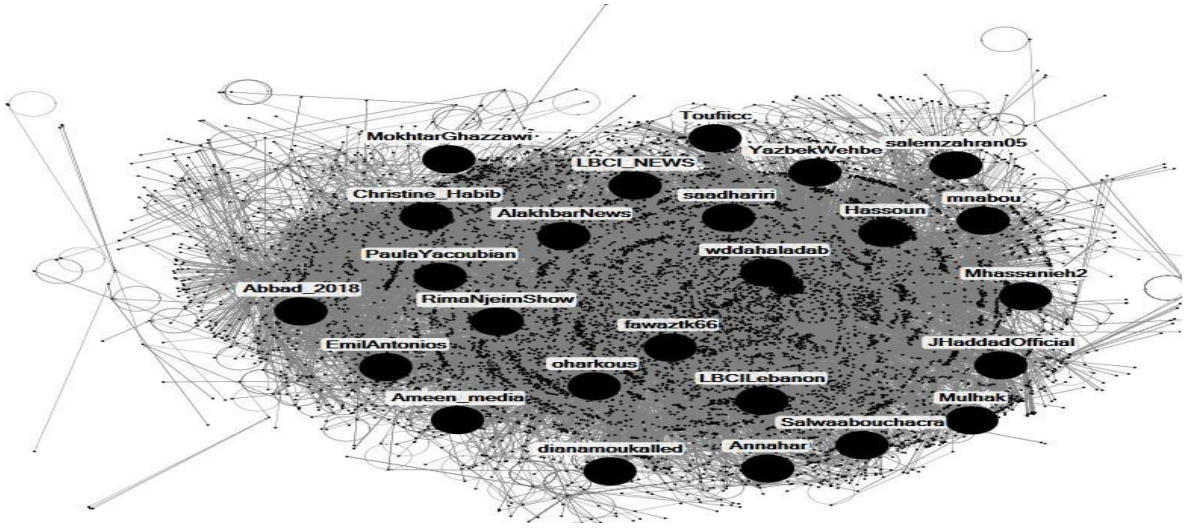

Figure 5: Visualization of users with the highest closeness centrality in the network

The final step of the network analysis was to identify communities within the network to better comprehend the dynamics among different clusters. This helps reveal the extent to which the network is divided and whether communities are communicating with one another. First, the modularity measure calculated by NodeXL scored 0.4, indicating that communities are relatively well defined but not completely isolated. In other words, nodes (users) within the same clusters are more strongly connected than with other nodes in the network. However, significant interactions also exist also among communities, suggesting relationships that transcend the borders of the clusters and enable the circulation of information between them. The analysis also identified 585 groups. We will focus mainly on the five groups with the highest number of interactions inside their communities and with other clusters (Table 6).

Table 6: Groups with the highest interactions within the network

Group	Number of interactions	Number of nodes
G3	7984	1873
G2	6859	2024
G5	2208	806
G6	2150	791
G4	2057	888
G8	1812	439
G9	1463	379
G10	1314	346
G7	1029	461

Group 2 plays an important role in the network, containing the highest number of users. The cluster is dominated by influential actors known to be pro-Hezbollah, such as journalists Israa Alfass, Salem Zahran, and Jamal Cheaib, as well as media entities like the Lebanese newspaper Al Akhbar, LuaLua TV (a Bahreini opposition channel), the Lebanese news website Mulhak, and

other users, primarily of Lebanese, Iraqi, and Iranian nationalities. In addition, a fake pro-Russian account, CounselKremlin, was identified (see Figure 6). Group 3 has the highest number of interactions and includes influential journalists, media outlets, and politicians that are against the politics of Hezbollah and its allies. Although these actors do not form a unified political bloc, they represent a community politically opposed to Group 2. This cluster includes political figures such as Saad Hariri, Paula Yaacoubian, and Joumana Haddad; the Future Movement; Lebanese journalists such as Diana Moukalled, Yazbeck Wehbe, Christine Habib, and Dima Sadek. Prominent Lebanese media outlets such as LBC, Al Jadeed, and Annahar are also part of this group. Group 4 is similarly characterized by high interactions and users opposed to Hezbollah, but its members are primarily based in Saudi Arabia and the United Arab Emirates. The cluster includes the Lebanese Journalist Nadim Koteich, who resides in Abu Dhabi, and the known Emirati expert on X, Amjad Taha. In contrast, Group 5 is a significant community supporting the pro-Hezbollah bloc and is composed by a majority of Iranian users with influential actors. Notably, only one account within this group, *IsraelPersian*, holds opposing political views. Finally, Group 6 is dominated by foreign journalists such as the Syrian, Faysal Kassem and the Saudi Ahmad Adnan.

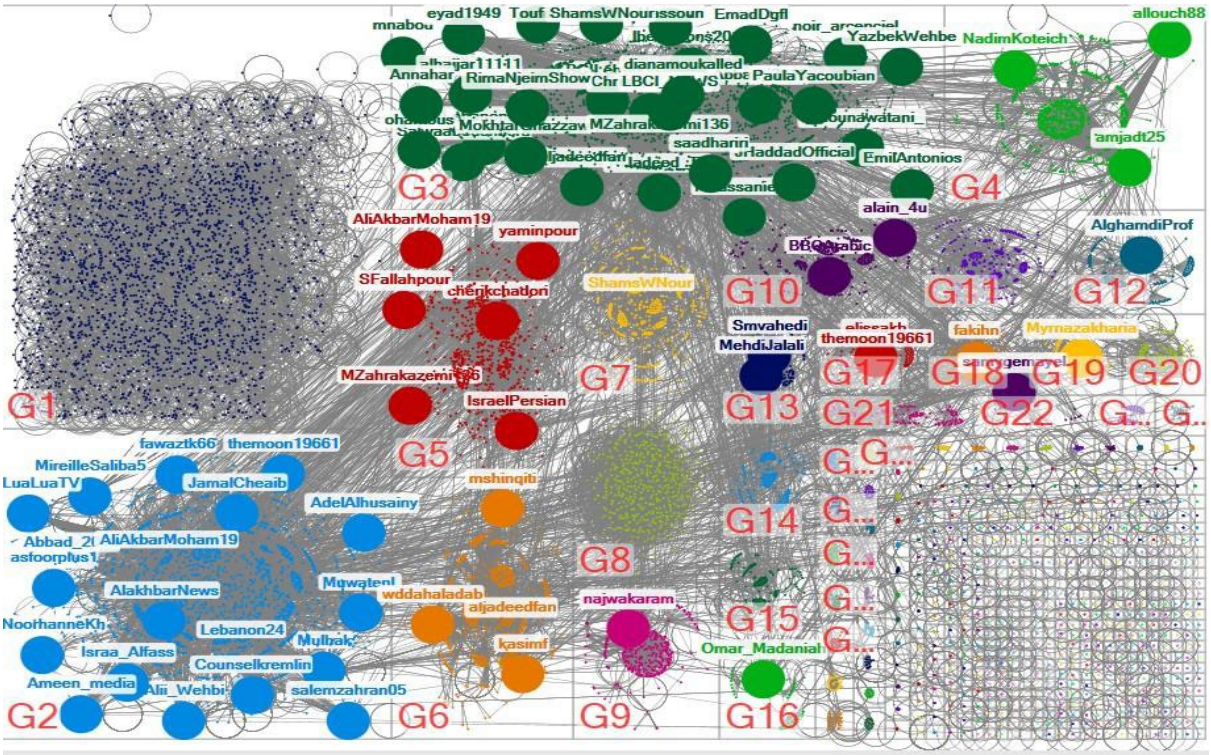

Figure 6: Visualization of the different clusters within the network

Although these communities have interacted the most inside their own clusters, information circulation was also observed among them. There are 312 ties from Group 2 to Group 3 and 195 connections from Group 3 to Group 2. These two communities are the clusters that

communicated the most with each other, despite their political opposition. Although the study did not perform an exhaustive content analysis of all tweets within the network, the majority of those examined were attack-oriented rather than dialogue-based. Group 2 has also interacted the most with Group 5, which is politically aligned with it. Group 3 is the cluster that communicated the most with other clusters, reaching 49 groups in total. This can be explained by its heterogeneity in terms of actors and opinion views, compared to other groups, and by the large number of influential actors present. After engaging the most with Group 2, Group 3 also interacted significantly with Group 4, a cluster opposed to Hezbollah, mostly composed of Saudi and Emirati users. Finally, other interactions among the groups examined in the study were present but fewer, with some groups engaging very poorly with other clusters, notably Group 4 and Group 5.

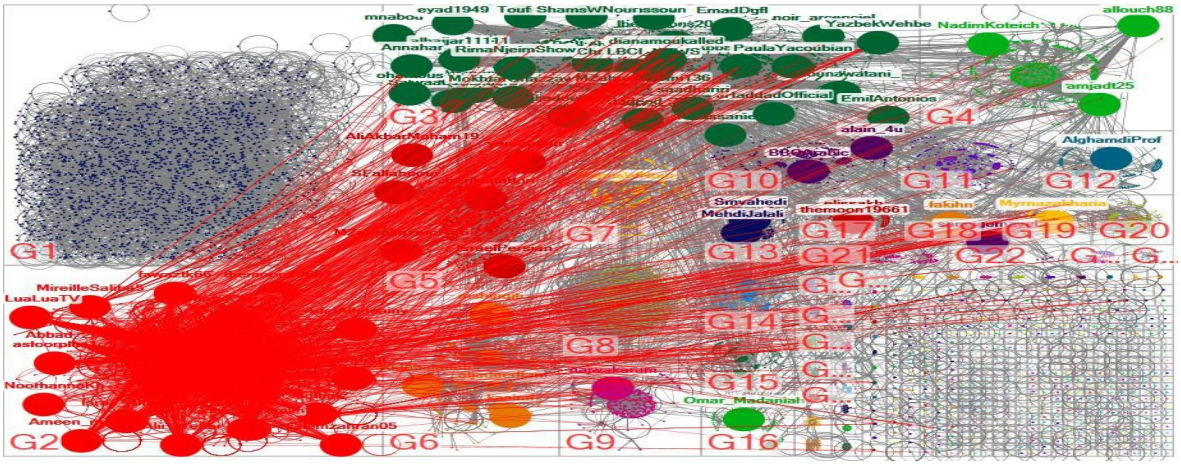

Figure 7: Visualization of ties from Group 2 to other clusters in the network

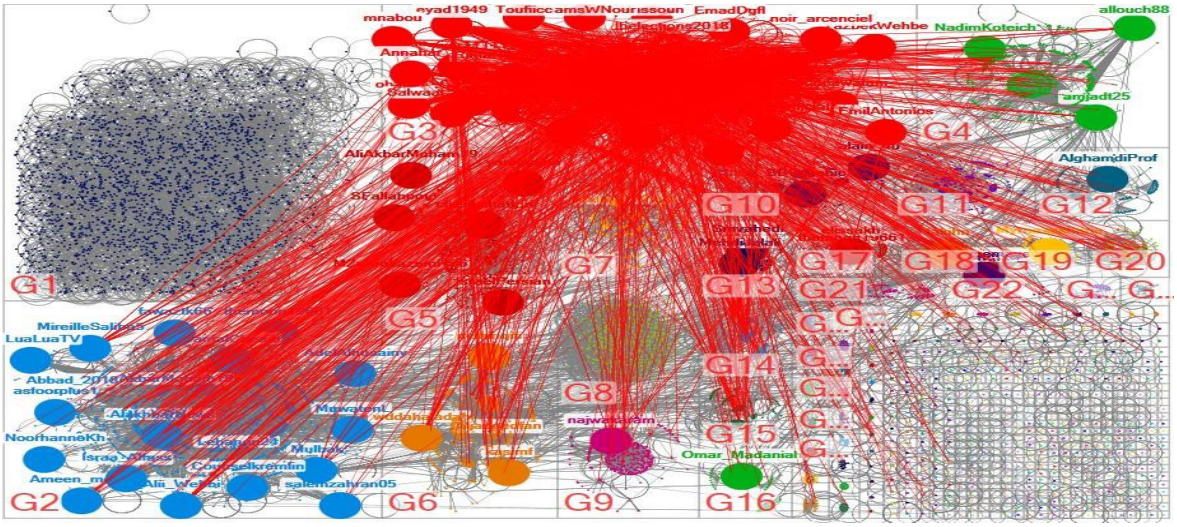

Figure 8: Visualization of ties from Group 3 to other clusters in the network

After analyzing the structure of the network, the study examines the content of tweets within the network (n=6,000) to evaluate the quality of the debate, using Table 2 as explained in the research methods section. Table 7 identifies the percentage of users' tweets within network

Table 7: Percentage of tweets published by users within the network by dimensions

	Dimensions	**Tweets**	**Percentage**
Productive to quality of debate	Rationality	1315	21.91
	Interaction	499	8.32
	Construction	439	7.32
	Expressions of positive emotions	225	3.75
	Sub-Total:	2478	41.3
Counterproductive to quality of debate	Lack of foundation	1904	31.73
	Incivility	1137	18.95
	Expressions of negative emotions	276	4.60
	Irrelevance	205	3.42
	Sub-Total:	3522	58.7
	Total:	**6000**	**100**

The lack of foundation's dimension accounts for the highest percentage, with 31.73% of tweets characterized by non-justified or non-factual statements, or by publications including jokes, irony, or sarcasm. Additionally, the sum of tweets containing incivilities and expressions of negative emotions reaches 23.55%. This indicates a significant presence of vulgarity and negative attitudes, which degrade the quality of debate. In particular, incivility harms any rational debate by failing to respect and recognize others within the network, a key element of the Habermassian public sphere. As a result, it transforms the public sphere into a space of confrontation. Moreover, the expressions of negative emotions can also contribute to increased tensions and polarization within the network. The total percentage of tweets that are counterproductive to the quality of the debate reaches 58.7%, indicating that the majority of publications hinder the creation of a real public sphere. However, although the percentage of tweets that are favorable and productive in enhancing the quality of debate is proportionally smaller, it remains significant at 41.3%. For instance, 21.91% of tweets show that users are presenting rational arguments in their discussions, a crucial aspect for fostering an enlightened debate and the formation of a real digital public sphere. In addition, 7.32% proposed new political perspectives or solutions to solve problems or to move the debate forward. These contributions could reinforce the public sphere by orienting exchanges towards concrete solutions and results. With a percentage of 8.32%, tweets responding or interacting directly with other users remain low. The interaction dimension is important for any public sphere and for a good quality debate, as it reflects a dynamic of dialogue where citizens actively engage with others - an essential element for achieving deliberation and the potential for consensus. Finally, expressions of positive emotions were low (3.75%) within discussions in the network. Although emotions are not central to the Habermassian public sphere, they can contribute to creating a climate of respect and attentiveness, fostering more harmony, openness, and less polarization within the network.

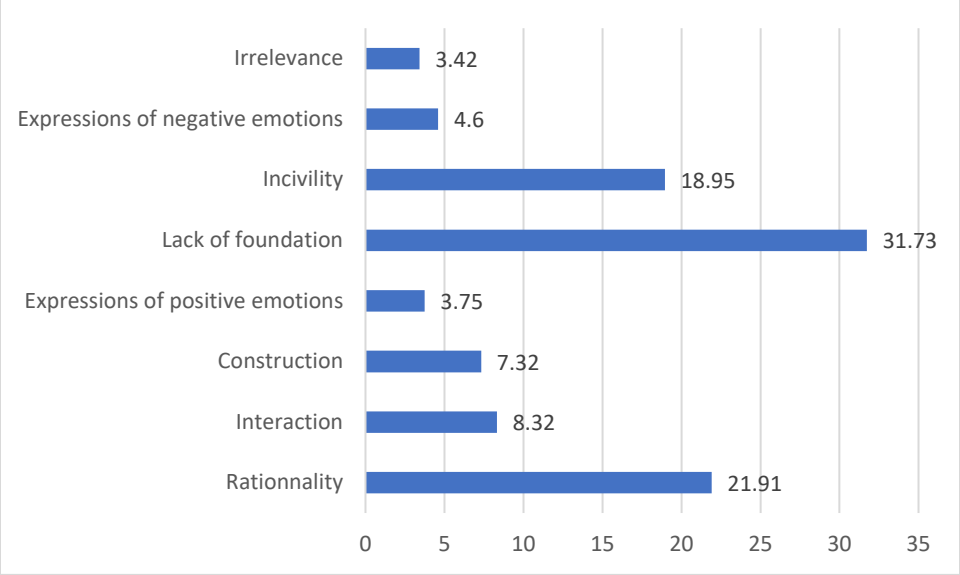

Figure 8: Percentage of tweets analyzed by dimensions within the network

Through network and content analyses, the present study was able to provide answers to the research questions above and present the following observations and interpretations:

First, the network analysis revealed that the majority of actors controlling and directing the flow of information and political discussions within the network #انتخابات_لبنان were either journalists, politicians, media outlets, or experts. As a result, a restricted circle of elites dominated the network, weakening its inclusivity.

Second, it is important to note that a significant proportion of these influential actors within the network were not of Lebanese nationality. Indeed, Saudi, Iranian, and Emirati actors, based on their central positions within the network, played a considerable role in influencing political discussions, potentially reinforcing political polarization and fragmentation among users. This foreign presence, clearly defined and observed during the analysis of the different communities in the network, confirms the interference of these external actors in the Lebanese elections and their support for local political parties or communities. These dynamics reflect the offline political reality, where regional and international powers have historically always intervened in Lebanese political affairs.

Third, several ordinary users were identified as influential and central actors within the network, enabling their participation in the circulation of information and avoiding a complete closed elitist circle. Nevertheless, their low presence maintains a hierarchical structure of the network.

Fourth, the network analysis revealed a fragmented and complex structure divided into multiple clusters, with interactions primarily occurring inside groups rather than between them. These clusters were identified as distinct communities with diverse and opposed political orientations and opinions, which could exacerbate political polarization. However, despite the fragmentation, it is not entirely isolated, as several communities have exchanged information beyond the borders of their own clusters.

Fifth, the content analysis of tweets within the network demonstrated that counterproductive tweets dominated political discussions, with the majority lacking rational and factual arguments and exhibiting incivility. These findings undermine the quality of debate and, therefore, hinder the formation of a genuine public sphere.

Consequently, by acknowledging the value of the concept as an arena for sharing information, participating in deliberation, and engaging in political debates (Dagoula, 2019), and by embracing the concept in a flexible manner, the study affirms the existence of a public sphere, albeit one that remains incomplete, limited, and underdeveloped. Multiple factors can explain this phenomenon, some are endogenous to the Lebanese political and media systems, while others are exogenous to these systems, such as the influence of algorithms and Artificial intelligence. *First*, the Lebanese political regime is rooted in a sectarian system where power is distributed among different communities (Corm, 2005). This system has resulted in the spread of sectarianism at all levels of society, consuming public space with religious communities entangled in networks of powers, whether coming from western or regional forces (Ibid, 2005). Lebanese political communication has been shaped and impacted by this confessional system, particularly media institutions. *Second*, the Lebanese media landscape reflects and reinforces the political system in place. Political parallelism is a constant and distinct feature of the Lebanese media system (El-Richani, 2016), where the interconnected relationship between media and politicians is the dominant aspect (Matar & Harb, 2013). Consequently, this dynamic contributes to societal fragmentation and damages the public sphere:

> Moreover, since these media are patronized and/or managed by feudal sectarian authorities, they contribute to the fragmentation of Lebanese society. Each medium addresses itself to audiences that are essentially of the same demographic characteristic (Dajani, 2019, p. 137).

These strong connections and affiliations between media and the political system are extrapolated on social media platforms, specifically X, contributing to fragmentation, polarization, and the transformation of Lebanese online discussion networks into echo chambers. The Lebanese traditional elite of politicians and journalists has reproduced the same logics and practices that exist offline on social media platforms, aiming to extend their domination to online networks and control information flows within them, leaving little space for interactions with ordinary users (Zebib, 2022). In line with Arab-context work, X increases public visibility within online space but is dominated by strong party–media alliances, which carry over from offline to online and promote fragmentation (Mohamed et al., 2019).

Third, discussions lacking arguments, uncivil tweets, and expressions of negative emotions are partly the result of a low level of media literacy among all actors of political communication - politicians, journalists, and citizens, particularly younger ones (Melki, 2013). These behaviors also reflect the broader political atmosphere that dominates the country. This is especially visible in interactions between opposing politicians on television and political talk shows, where debates are frequently marked by aggressive and offensive exchanges, as well as unprofessional and unethical behavior at both political and media levels. Such practices

contribute to a culture of confrontation rather than constructive dialogue offline, a dynamic which extends to online discussions and undermines the digital public sphere. Moreover, constant exposure to uncivil tweets impacts user commenting behavior and online participation (Oz & Greeves, 2024), resulting in its normalization, and in increasing pejorative and narrow-minded views of opposing groups or minorities (Soral et al., 2020).

Fourth, external factors such as the influence of algorithms and AI can also explain fragmentation, polarization, and low quality of debate for the following reasons:

a) X's algorithms play a critical role in filtering political information for users. The platform's structure enables algorithms to select content deemed pertinent to individual users while excluding content that is supposed to be less important (Stark et al., 2020). Additionally, these algorithms prioritize the selected content by arranging it from the most relevant to the least relevant on each user's newsfeed. Moreover, algorithms personalize political information by tailoring content according to each user's preferences and interests (Jürgens & Stark, 2017). Consequently, algorithms are replacing the role of traditional media gatekeepers and are equally as influential as key actors within social media networks, such as journalists and politicians (Thorson & Wells, 2016). This filtering of information, the limitation of diverse content and political topics, and the individualized media exposure driven by algorithms could help explain their role in increasing fragmentation and polarization: "algorithmic news personalization could lead to a situation, in which the shared public sphere becomes increasingly disintegrated and breaks up into smaller "issue publics" (Moeller & Helberger, 2018, p. 4).

b) X's algorithm also tends to prioritize emotional contents (Tucker et al., 2018) because users are more likely to engage with such publications. Emotional contents such as anger, fear or sadness tend to spread faster due to the intense reactions it generates, which can amplify the division of opinions and further fragment discussions. Moreover, privileging emotional contents simplifies and superficializes political issues and debates, as it lacks real, constructive and argumentative discussions.

c) The character limitation, depending on the type of account, harms two important dimensions of the public sphere: inclusion and rationality. Regular users who do not subscribe to X premium cannot write more than 280 characters, which limits their ability to explain and construct their arguments (Nahon, 2016). In contrast, premium subscribers - typically politicians, journalists and experts - can publish tweets of up to 10,000 characters. This naturally creates an unbalanced equation, giving them more space to speak and expand information compared to non-subscribed users.

d) Algorithms and AI can contribute to fragmentation and the low quality of debate through political bots. Political bots are defined as "a user account that has been equipped with the features or software to automate interaction with other user accounts about politics" (Howard

et al., 2018). Some bots are simply algorithmically designed to tweet and retweet multiple times at a fast pace, while others are more sophisticated and can perform complex tasks such as gathering information, taking action (reply, like, or retweet), and working to achieve specific political goals. Political bots can follow and support politicians online to increase their popularity, attack politicians and journalists to discredit them, or propagate misinformation, fake news, or deepfakes in support of or against specific issues or persons (Ibid, 2018). Although this study did not exhaustively identify bots within the network, several accounts likely to be bots were detected. In addition, an international report on computational propaganda has already identified the presence of political bots between 2010-2020 (Bradshaw et al., 2021). These non-human interventions in online discussions pose a real threat to the public sphere and to its degradation.

CONCLUSION

The study was able to demonstrate the control and dominance of journalists, politicians, and foreign actors on X discussions during the Lebanese electoral campaign. However, the low presence of influential ordinary users was observed, resulting in limited inclusivity within the network. The network discussion over the hashtag #انتخابات_لبنان revealed a fragmented and polarized network. The public sphere remains, thus, incomplete, limited, and underdeveloped. The main factors contributing to this *état des lieux* are algorithms and AI, the Lebanese political and media systems, and the lack of media literacy among users. Although these aspects are often regarded as the culprits, if enhanced, they might as well serve as potential solutions. Journalists and politicians should adopt a more inclusive, open, and less divisive discourse, working towards more horizontal and multidirectional communication that would allow greater interaction with ordinary users. Additionally, there is a necessity to promote and improve digital media literacy for all actors in political communication (politicians, journalists, and citizens) through public awareness campaigns, training, and academic courses. This would contribute to the development of productive content based on rationality, constructiveness, veracity, interaction, and respect. AI tools have been developed by scholars and commercial companies in order to enhance the online public sphere by improving the quality of discussions (Rodríguez-Ruiz et al., 2020). Within AI tools, the main dimensions operationalized are rationality and civility. Rationality is assessed through the detection of argumentative structures, such as evidence-based reasoning and logical exchanges, while civility is addressed through the identification of vulgarity. Enhanced hate speech detectors, argument mining models, and moderating bots (Carstens & Friess, 2024, p. 2) can therefore help improve the quality of debate. Recent studies have also experimented AI-based tools like chatbots to boost reciprocity among users by identifying passive ones and encouraging them in actively participating in discussions (Argyle et al., 2023; Ito et al., 2022; Kim et al., 2021). AI tools can also be employed to automatically simplify texts in order to increase participation in online and reduce online exclusion (Stodden et al., 2023). Finally, the adoption of these AI tools in partnership with human moderators is essential to prevent inequalities, inaccuracies, errors, and the exclusion of certain types of speech (Carstens & Friess, 2024). “AI increasingly assists human moderators. It filters which unclear or nuanced content moderators

need to evaluate and offers information about the cases to be reviewed" (Wojcieszak et al., 2021, p. 226).

Although collaboration between humans and AI tends to mitigate these issues, the study highlights that human intervention is not free from bias. Human moderators are also following regulations and policies imposed by corporations, as it is the case for X. There are two main limitations to this paper. First, the content analysis was conducted on only 6,000 tweets out of a total of 31,496. An analysis on a larger sample or on the entire tweets within the network could have provided a more comprehensive understanding. However, this would have required the use of supervised machine learning. Second, the detection and identification of all political bots in the network would have improved the results by revealing their real influence on discussions in terms of quality, fragmentation and polarization.

BIODATA

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