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Abstract

The paper illustrates the intricacies of online collective behaviors by delving into the multifaceted nature of online firestorms. Behind seemingly similar expressions, collective online behaviors can be driven by different underlying sociological and techno-communicative processes. Using the case of online firestorms, the paper expands on the more common perspective of these events as marketing-related reputational crises by examining them as coordinated political digital protests. A firestorm orchestrated by pro-Vietnam activists targeting the Facebook page of the Chinese embassy in Italy, which is analyzed using digital and computational methods, exemplifies this viewpoint, illustrating how the event results from strategic mobilization within a networked environment. More broadly, the paper advocates for a nuanced analysis of online collective behaviors, digging beyond seemingly similar digital traces.

Keywords: coordinated behavior, online firestorms, digital sociology, social media, digital activism.

1. Introduction

In 1998, thousands of online users, coordinated by an internet-based organization supporting the Zapatista rebels in Mexico, caused the slowdown and eventual interruption of President Ernesto Zedillo's site (Kaplan, 1998). When the World Trade Organization (WTO) summit began in Seattle on 30 November 1999, thousands of activists crashed the WTO server (Van Laer &

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Van Aelst, 2010). In January 2012, the German bank ING-DiBa faced a barrage from vegan activists on its Facebook page, with a new message or comment posted every 5 seconds at the protest's peak (Pfeffer et al., 2014).

The first two events fall under the Distributed Denial of Service (DDoS) category, which involves disrupting a server, service, or network by overwhelming it with excessive internet traffic from multiple sources (Karanasiou, 2014). The last two are defined as firestorms, "the sudden discharge of large quantities of messages containing negative word-of-mouth (WOM) and complaint behavior against a person, company, or group in social media networks" (Pfeffer et al., 2014, p. 118).

While DDoS has been linked to hacktivist practices described as "digital sit-ins" - coordinated efforts to disrupt public services to convey political messages (Karanasiou, 2014) – firestorms are generally viewed as spontaneous collective behaviors of multiple individuals expressing anger against a brand or public personality for their perceived misconduct. This perspective views online firestorms mainly as threats to public relations and brand reputation, potentially causing economic damage and requiring monitoring. This paper, however, treats firestorms as aspects of coordinated digital protests, where individuals with a common goal engage in strategic, synchronized actions across social media to achieve specific outcomes (Giglietto, Righetti, Rossi, et al., 2020). Recently, coordinated behaviors on social media have received more attention, primarily discussed as inauthentic actions related to trust and safety or disinformation (Gruzd et al., 2023). Accordingly, the prevalent approach to these phenomena focuses on diagnosing, screening, and treating harmful coordination. This approach is also commonplace in studying online firestorms concerned with their negative consequences for brand reputation (Herhausen et al., 2019; Pfeffer et al., 2014). However, firestorms can also emerge as legitimate coordinated protest behaviors.

This paper examines firestorms by combining social movements scholarship with recent research on coordinated social media behaviors, extending beyond disinformation to broader social movement studies (Kulichkina et al., 2024; Righetti, 2023). Specifically, "digital sit-in" is employed as a sensitizing concept (Blumer, 1954) to shift the attention from firestorms as a public relations problem towards their understudied protest functions. According to Herbert Blumer, "defining concepts" provide clear-cut distinctions, while "sensitizing concepts" are typical in the social sciences for addressing varied and dynamic social phenomena. These concepts are more blurred than the defining ones but invaluable for directing attention to significant aspects of social reality (Blumer, 1954). By using "digital sit-in" as a sensitizing concept, this paper does not aim to introduce new terminology or a new paradigm but rather to emphasize certain aspects of online firestorms.

The paper includes a theoretical section that reviews current firestorm literature and integrates it with research on online social movements and coordinated behaviors. This is followed by a case study that highlights emerging themes. Although the concepts and phenomena discussed are not new, the paper provides insight into the complexity of online collective behaviors, deepens the understanding of firestorms as intentional protests through a broad literature review, and highlights their significance as understudied social events.

2. Online firestorms from reputational crisis to social protests online

Internet and social media have made activism far more accessible than before (Van Laer & Van Aelst, 2010). Social media users coordinate to share messages, take down accounts by mass reporting them, and flood posts with angry comments, manifesting discontent in public protests online. A large body of social movement literature has underscored the fundamental role of digital media in coordinating social protests (Bennett & Segerberg, 2013). Recent methodological literature on coordinated behavior on social media has also focused on disinformation (Giglietto, Righetti, Rossi, et al., 2020; Keller et al., 2020) and computational methods (Giglietto, Righetti, & Rossi, 2020; Graham et al., 2024; Righetti & Balluff, 2024), showing that coordinated behaviors are sometimes anti-social and harmful (Haythornthwaite, 2023). Examples include brigading, which is "the barracking of an opposition advocate's social media content to disrupt their endeavors" (Stiff, 2019, p. 382), and "coordinated inauthentic behavior", the synchronized sharing of malicious content by organized networks of accounts on social media (Giglietto, Righetti, Rossi, et al., 2020). These terms capture coordinated social media behaviors from a "trust and safety" perspective (Gruzd et al., 2023), also informed by policies of the major social media platforms, to describe undesirable collective behaviors with a potentially destructive impact on platform users, society, and democracy (Chan, 2024).

These two facets of online behaviors similarly emerge in the literature on online firestorms. Online firestorms have been studied in specialized literature as prevalently harmful, specifically within marketing and public relations (Pfeffer et al., 2014). While most works focus on their negative reputational consequences for the target and overlook their role as legitimate protest actions, the protest nature of firestorms is not foreign to the literature, which has recognized that they often emerge as expressions of outrage and demand for accountability for public violations of social norms (Einwiller et al., 2017; Johnen et al., 2018; Rost et al., 2016). The scholarship on online social movement protests is at least contained implicitly in that on firestorms. It can

further complement their understanding by highlighting the comparatively overlooked aspects of coordinated protest actions online.

2.1. Collective protests in the age of social media

A large body of literature shows that the internet and social media have revolutionized mobilization and collective action, reducing the need for traditional organizational structures (Olson Jr, 1971), although still playing a role in sustaining the efforts in campaigning and connections (Karpf, 2012). Social media have become critical resources for social protests, as they reduce logistical barriers, amplify reach, and facilitate rapid mobilization by leveraging the "strength of weak ties" (Granovetter, 1973; McCarthy & Zald, 1977), which are instrumental in spreading information beyond tight-knit groups, thereby exponentially increasing the reach and impact of social protests. Further scrutinizing how collective action has evolved into the digital realm, Bennett and Segerberg's theory of connective action articulates how social media networks can replace the traditional need for organizational structures (Bennett & Segerberg, 2013). Social media technologies enable large-scale mobilization without hierarchical coordination. Through shared content and viral messaging, these platforms empower users to engage in collective actions reflecting their personal and social identities, aligning with identity and post-material values (Melucci et al., 1989). Social media protests' personalized and global nature articulates shared values and fosters solidarity across national boundaries (Baran & Stoltenberg, 2024). Social media is also a dual-edged sword within this power landscape: it is a tool for institutional power projection and grassroots counterpower actions (Castells, 2007). Social media platforms become battlegrounds where power is expressed and contested by providing a space for powerful actors and marginalized groups to voice their concerns.

The literature on online firestorms recognizes their social protest nature and the outrage driving many firestorms (Einwiller et al., 2017; Gruber et al., 2020). However, the prevalent concern is avoiding, extinguishing, or mitigating the firestorm, preserving the target – which in the considered literature is usually a brand or a company – from undesirable consequences (Herhausen et al., 2019; Rost et al., 2016). For example, firestorms can cause significant financial losses, reputation crises, and threats to brand assets, leading to potential scandals, resignations, and image damage (Einwiller et al., 2017; Hansen et al., 2018; Johnen et al., 2018; Pfeffer et al., 2014). Consequently, scholars are oriented to detection methodologies that could lead to mitigation interventions to extinguish the firestorm before becoming viral and more harmful, reducing reputation damage and economic loss. Among the suggested strategies are

responding fast, avoiding ignoring and non-responding at all, mobilizing brand supporters, offering compensations for failed services and products, but also explanations and empathy to complaining customers, and trying to disengage by readily apologizing and taking the complaining customers outside the social media channels where firestorms could propagate by offering alternative communication means with the company (Herhausen et al., 2019; Johnen et al., 2018; Lappeman et al., 2018; Scholz & Smith, 2019).

2.2. From reputational crisis to digital sit-ins

The marketing and PR focus on firestorms mainly addresses their negative aspects. This overlooks the complexity of online firestorms, including their political implications (Castells, 2007; Stolle et al., 2005).

Using the sensitizing concept of "sit-ins", many online firestorms can be viewed as political protests rather than mere reputational crises. Sit-ins have "become the hallmark of contemporary popular movements" (Gerbaudo, 2012, p. 5). They are defined as nonviolent protest methods "characterized by the interference created by people's physical bodies, especially as they enter, or refuse to leave, someplace where they are not wanted or from which they have been prohibited [...] to disrupt the normal pattern of activities" (Sharp, 1973, p. 371). The concept of digital sit-ins has been used to describe DDoS attacks, where multiple machines flood a target with traffic, causing it to crash and blocking access for legitimate users (Dominguez, 2019; Karanasiou, 2014). This technique has been linked to a sit-in in that it implies an orchestrated effort to interrupt a public service to send a political message (Kaplan, 1998). While there are many technical differences between DDoS attacks and social media coordinated protests like firestorms, both serve as means to voice dissent. Social media enables activists to coordinate actions more easily than DDoS, which does not require technical expertise (Van Laer & Van Aelst, 2010). Firestorms typically involve common social media activities - commenting, sharing, reacting angrily, and reporting accounts - aimed at expressing discontent. Although less disruptive than DDoS attacks, the impact of firestorms still raises concerns (Hansen et al., 2018). DDoS can also require a more stringent organization than firestorms and other social media protests, which can rely upon organized and connective social network structures (Bennett & Segerberg, 2013). Unlike DDoS, social media protests can leverage existing network structures for organizations, resembling digital sit-ins where messages disrupt digital spaces to communicate protest.

Despite their differences, these coordinated efforts similarly aim to protest. Instead of occupying physical spaces with bodies, as in traditional sit-ins, they occupy digital spaces and disrupt communication with digital messages (Sharp, 1973, p. 371).

2.3. The role of social media affordances in the firestorms blaze

Current literature on firestorms primarily focuses on psychological and psycho-social factors driving individual participation, which can also provide strategies to prevent and mitigate firestorms (Gruber et al., 2020; Johnen et al., 2018). More significantly, from a social protest perspective, social norm theory has been applied to emphasize the role of perceived violations of values as an explanatory factor (Einwiller et al., 2017). According to this view, people participate in firestorms to enforce the social norms they perceive to have been violated, aiming at social change (Gruber et al., 2020; Johnen et al., 2018; Rost et al., 2016).

Virality and volatility are also mentioned as causes of firestorms. Explanations generally point to message shareability characteristics, such as negative messages being more likely to be shared (Legocki et al., 2022). Social media algorithms and affordances or the mobilization strategies they afford are considered to a lesser extent (boyd, 2010; Bucher et al., 2018; Kakavand, 2024; Van Dijck & Poell, 2013). An exception is attention to online user anonymity, whose role in fomenting negative messages on social media has been both advanced and contested (Rost et al., 2016). The networked structure of social media is also recognized as a significant factor for information diffusion and fast firestorm spread (Hauser et al., 2019; Herhausen et al., 2019). Still, scant attention is paid to the connective and collective mobilization strategies that these structures afford (Bennett & Segerberg, 2013). Not only do networked social media structures favor the propagation of firestorms (Hauser et al., 2019), but they also serve as mobilizing tools for activists to organize and coordinate protests (Canevez et al., 2024). Mobilization strategies can be centrally organized, emerging from connective social network architectures, or organizationally enabled (Bennett & Segerberg, 2013). Centrally organized structures encompass traditional advocacy organizations that mobilize protesters in a centralized manner. For example, animal advocacy organizations mobilize armies of digital activists to flood social media with concerted messages (Righetti & Bertuzzi, 2020). Connective structures refer to personalized and digitally mediated networks that can mobilize participants without the involvement of established organizations (Bennett & Segerberg, 2013). Online firestorms can also merge with users intentionally utilizing these structures to mobilize a collective through mailing lists, social media accounts, or hashtags (Jackson et al., 2020).

2.3.1. Synchronization and repetition patterns in online coordinated mobilizations

Mobilization online has characteristics and aspects. Particularly, it emerges in synchronization and repetition patterns of users' behavior. When analyzing firestorms as networked actions, synchronicity emerges as a specific element. Recent social network analysis studies have highlighted the significance of synchronicity in coordinated behavior on social media, as they help distinguish between chance-based coordination and organized communicative efforts (Giglietto, Righetti, Rossi, et al., 2020). Going beyond this, it can be additionally observed that repetition and synchronization can serve other functions in coordinated actions. On social media, collective action does not inherently need strict synchronization to be effective, as participants do not need to flock to the target simultaneously but can contribute to the protest at slightly different times. Social media action builds on social media's datafied structure (Van Dijck & Poell, 2013), where traces cumulate without (usually) being deleted.

However, synchronicity can be intentionally chosen or indirectly emerge from various reasons. First, the literature on coordinated behavior on social media has suggested that social media synchronicity can be leveraged to manipulate algorithms responsible for content distribution, boosting certain content's visibility and relevance (Giglietto, Righetti, Rossi, et al., 2020). Second, synchronization serves symbolic-communicative purposes. Similar to offline protests, where individuals simultaneously take to the streets, join mobs, or participate in sit-ins, synchronized actions online amplify the communicative impact and contribute to the choreography of the protest, which symbolically compensates for the physical absence of protestors and amplifies the impact of the protest in the digital realm (Benford & Hunt, 1992; Foster, 2003; Gerbaudo, 2012). From this perspective, repetition adds to the chorographical effect. While protestors can express their grievances through diverse messages, repetition emerges as a powerful tool when protestors converge, more or less intentionally, around similar content, mimicking the effect of mass mobilization through recognizable message patterns. The affordances of social media platforms facilitate message replication (boyd, 2010), simplifying participation in protests by enabling users to copy and paste protest messages easily. This lowers the already low participation costs, as individuals can engage without creating original content (Christensen, 2011). They also enable the representation of the choreography of the protest by providing digital spaces where individual communicative actions are algorithmically aggregated, preserved, and shown to bystanders, such as the comment section of a post or the trending section of the former Twitter.

Organizational and technological structures also influence synchronization in a third way. When collectives mobilize through connective and personalized networks facilitated by contemporary social media platforms, synchronization can occur rapidly as network nodes activate (Bennett & Segerberg, 2013; Van Dijck & Poell, 2013). Once the protest call reaches all potential users, facilitated by the characteristics of digitalized social networks, the protest naturally dissipates, contributing to explaining the characteristic velocity or virality observed in the literature on firestorms (Pfeffer et al., 2014).

2.4. The varied nature of social media firestorm participation

Firestorms are characteristically collective (Gruber et al., 2020), but the nature of the collective participating in firestorms has been relatively overlooked in current literature. The scholarship on coordinated manipulative behaviors online can add layers of complexity. For example, firestorms, like DDoS attacks, are collective behaviors, but participants can consist entirely or partially of bots, or human users may be supported by technological devices. However, this aspect is only rarely acknowledged in the literature (Rost et al., 2016). In the case of DDoS, participants can be "zombies," a group of computers infected by malware under the control of a malicious actor sending the attacks, and other technological means can increase the traffic needed to launch the attack. Automated means to support a cause can be defined as astroturfing, that is to say, a fake grassroots action (Chan, 2024; Keller et al., 2020). The issue of fake participants has been prevalent among hacktivists using DDoS to voice protests, leading to divisions regarding the use of automated systems that do not require publicly announced mass participation to have an effect. Some critics of these strategies have argued that they are undemocratic and secretive, advocating instead for systems that ensure real individuals carry out actions to bear witness to injustices (Arquilla & Ronfeldt, 2001, p. 338).

In the case of social media, automated or hybrid automated-human controlled accounts can participate in the protest to varying degrees. Scholars have described the "Fifty-Cent Armies" of China, composed of people paid to cheerlead for the government on social media (King et al., 2017), the Russian web brigades (Zhang, 2021), and the "Force 47" cyber-army of the Communist Party of Vietnam (Luong, 2021). Within studies of coordinated online behaviors, the use of networks comprising many social media accounts managed by a central entity is even regarded as a baseline (Giglietto, Righetti, & Rossi, 2020) or problematized to distinguish between different types of coordination (Kulichkina et al., 2024; Righetti, 2023). Similarly, the collectivity behind firestorms should not be taken for granted but deserves scrutiny.

Distinguishing between authentic and inauthentic actions can be challenging, requiring caution when interpreting the origin and meaning of the

protest episodes. Furthermore, making distinctions between grassroots and fake sit-ins may lead to false dichotomies, as different categories of participants can contribute to the same protest. For example, governmental actors may together foment and exploit a grassroots protest fueled by authentic nationalistic sentiments (Starbird et al., 2019). Consequently, attributing an event solely to one category of actors can oversimplify and mystify the phenomenon, potentially leading to misleading interpretations.

2.5. Coordination for amplification and the public impact of firestorms

In the literature on firestorms, any publicity fostering the protest cannot be viewed as anything other than detrimental to brands. It should ideally be mitigated or prevented entirely. Conversely, adopting the sensitizing concept of digital sit-ins to look at firestorms emphasizes that activists actively pursue visibility, utilizing the affordances of social media and the dynamics of crossmedia platforms to amplify their grievances.

Fueled by news media, the scandalization process serves the interests of activists seeking to broaden the visibility of protests and instigate social change (Einwiller et al., 2017). Literature on social media and movements illustrates how activists harness algorithmic processes to amplify digital protests. Coordinating the simultaneous posting of messages with specific hashtags effectively manipulates the algorithms responsible for selecting trending topics, thereby significantly increasing the visibility and impact of the protest online (Jakesch et al., 2021). The impact of media visibility of firestorms has been assessed in current literature concerning their consequences on brands. From a social movement perspective, increased visibility on the media is one of the main criteria for evaluating their impact as digital sit-ins (Castells, 2007; Freelon et al., 2016; Gamson & Wolfsfeld, 1993).

3. A firestorm on the digital embassy of China in Italy amidst the COVID-19 pandemic

Looking at firestorms from a social media protest approach provides a different angle into their dynamics and implications, highlighting some limitations of the current analysis of firestorms. This section of the paper presents a case study to illustrate some points. Digital methodologies, computational methods, and standard basic statistics inform the empirical approach (Rogers, 2013; Salganik, 2019). Data from Facebook was collected using CrowdTangle (CrowdTangle, 2020), and user comments (N = 97,195) on

a post targeted by a firestorm were gathered using the FacePager software (Jünger & Keyling, 2018). The analysis included a time series peak analysis to track comment surges indicative of the firestorm and a frequency analysis to assess the most common emotional reactions (Anwar & Giglietto, 2024). A focused CrowdTangle search, through the "link" API endpoint, identified additional messages mentioning the targeted post, shedding light on the networked structure that facilitated the spread of the firestorm. Text mining techniques and frequency analysis (Benoit et al., 2018) were used to identify repeated messages and hashtags across comments, defining the "choreography" of the protest and revealing patterns of coordination. A random sample of commenter profiles (N=150) was manually reviewed to assess participants' demographics. Additionally, articles from Vietnamese and Italian media outlets were analyzed to provide contextual understanding and evaluate the impact of the online protest on news media. R software was used for computational data collection and all the quantitative analyses (R Core Team, 2022).

3.1. The episode that sparked the firestorm

In March 2020, thousands of pro-Vietnam activists locked to the official Facebook page of the Embassy of the People's Republic of China (PRC) in Italy. The main target of the firestorm was a post shared on the Facebook page of the Chinese embassy in Italy on March 15, 2020 (Figure 1). The post featured two images depicting the maps of China and Italy being carried by a Chinese and an Italian nurse, respectively, symbolizing a relationship of reciprocity and solidarity. It draws an analogy between China's assistance to Italy during the COVID-19 pandemic and Italy's aid to China following the 2008 Sichuan earthquake, portraying China in a benevolent and sympathetic light, consistent with its communication strategy during the pandemic. Notably, the post includes a yellow dashed line on the map of China, encompassing the Spratly Islands (Truong Sa) and the Paracel Islands (Hoang Sa), territories fiercely contested and claimed by Vietnam (Huong, 2020). This inclusion challenges Vietnamese sovereignty and nationalist sentiment, thereby triggering a pro-Vietnam firestorm. On June 30, 2020, the targeted post received a record number of 97,195 comments, a much larger number than the average for the whole period of the pandemic (M = 1,573 comments). It also got a record number of 79,592 Angry, a reaction employed by users to make clear that they are upset about the post's content. Angry reactions on this post represent 85% of the total, while the average number of Angry reactions on the posts published by the embassy page is only 2%.

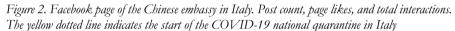
Figure 1. The post by the Facebook embassy of China that triggered the firestorm. The message says: "You might have forgotten it, but we will always remember. Now it's up to us to help you. Thanks to the two talented artists Aurora Cantone and 對正乎. #ForzaCinaeItalia". The chart of China on the left shows, in yellow, the contested nine-dash line including the Spratly Islands (Truong Sa) and the Paracel Islands (Hoang Sa).

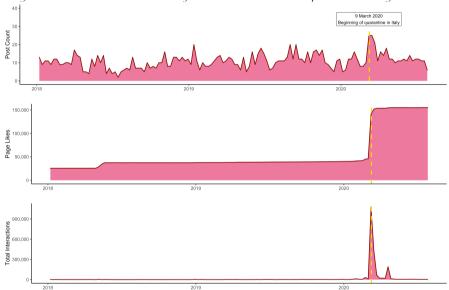


3.2. Contextual information

Some information about Chinese social media communication (Donato, 2023) is helpful in better contextualizing the event, especially in the light of the particular period when the episode happened, the COVID-19 pandemic. Since 2013, China (PRC) has invested in a significant Facebook communicative apparatus, developing numerous regionalized state media pages. Digital media

has been utilized to "tell China stories well" and promote positive Chinese politics globally (DiResta et al., 2020; Zhao, 2020), echoing historical practices emphasizing competence, benevolence, and attentiveness (Pan, 2019; Verma, 2020). It should also be noted that China's internal online communication is tightly controlled, exemplified by the Golden Shield Project, or "The Great Firewall", which has censored popular social media like Facebook and Twitter (Torfox, 2011). National social media comments indicative of social mobilization are often censored, with the government fabricating and posting millions of comments yearly to distract and bolster its narrative (King et al., 2013, 2017). While China cannot surveil Western social media to the same extent, its presence there enhances public diplomacy efforts while presenting challenges and opportunities for China's soft power, as highlighted during the COVID-19 pandemic (Gill, 2020; Verma, 2020).





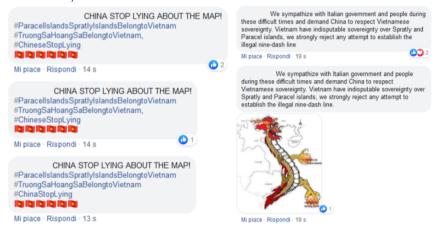
The Facebook page of the People's Republic of China embassy in Italy was established on June 9, 2014. It gained significant relevance during the COVID-19 pandemic, portraying China as sympathetic toward Italian citizens. The page averaged 45 monthly posts, peaking at 87 in March 2020. From January 30 to May 3, 2020, amid Italy's first COVID-19 emergency, the page published 204 posts, coinciding with a surge in user engagement and follower numbers.

Notably, between March 8 and March 15, 2020, when Italy implemented a lockdown due to the pandemic, page followers increased by 208% (from 45,739 to 141,011), and interactions reached 1,077,921 (Figure 2).

3.3. Coordinating a digital sit-in protest

Clear coordination indicators, such as repetition and synchronization, are evident when pro-Vietnam users inundated the comment section of the targeted post with identical textual messages, hashtags, and memes. Some comments even retained quotation marks, suggesting participants copied them from elsewhere online. The analysis revealed thousands of repetitions of messages resembling those in Figure 3 under the embassy's post.

Figure 3. An anonymized screenshot of comments published thousands of times by pro-Vietnam protesters under the post of the Chinese embassy. These messages were copied and pasted by the users involved in the protest.



Another characteristic sign of coordination, synchronization, also emerges. It manifests as the sudden appearance of many comments expressing grievances against the Chinese government (Pfeffer et al., 2014). Figure 4 shows the number of comments posted under the Chinese embassy's post over time. It displays the total comments (in red) and the comments that match the most frequent keywords and hashtags used by protestors (in yellow). It is evident that protester messages are concentrated within a short, defined time frame.

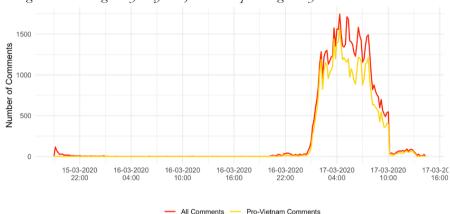


Figure 4. Time series of all the comments (red) and the pro-Vietnam comments identified through a text mining analysis (yellow) under the post targeted by the SMSI.

The synchronicity of firestorms can be traced to at least three factors, namely strategical, chorographical, and unintentional emergent propriety of communication spread within networked social media. In the case under analysis, evidence suggests that activists strategically leveraged social media affordances in what appears to be a connective and organizationally enabled action (Bennett & Segerberg, 2013). Various pro-Vietnam pages and groups are dedicated to the Spratly and Paracel Islands dispute on Facebook. This network of pages and groups, readily exploited by Vietnamese and pro-Vietnam users, quickly disseminated the call for action. For instance, the page "Trường Sa – Hoàng Sa là của Việt Nam", with approximately 90,000 page likes, shared a post urging followers to report and comment "Hoang Sa - Truong Sa is Vietnamese" to raise awareness of national sovereignty protection, alongside a link to the embassy's post. Similarly, the page "Chính Trị Việt Nam", boasting about 550,000 page likes, shared a post encouraging followers to engage with the Chinese Communist Party's Facebook page provided in the post, using the hashtag #hoangsatruongsabelongtovietnam.

Cross-media dynamics also emerged. The protest spread thanks to popular personalities such as the Vietnamese singer Nathan Lee, with about 220,000 followers on Facebook, who commented on the post with a message written in English and Italian:

Oh Italia! I know you guys have a lot to deal with right now but let's not forget Spratly and Paracel Islands belong to Vietnam! Some people have the tendency to forget that Fact nowadays! I personally wouldn't put my trust in

people who LIE! Chiunque sia responsabile di questa pagina dovrebbe cambiare le immagini al più presto, essere onesto con sé stesso e con il mondo prima di provare ad aiutare! Be safe! And be Honest!

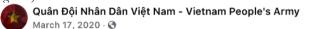
A Vietnamese woman living in Italy published this message on an Italian Facebook page dedicated to Vietnam:

Yesterday, the Facebook page of the Chinese embassy in Italy published two images that show the spirit of solidarity between the two countries. There would be nothing wrong if there were no images of the 'cow tongue' under the map of China. Of course, they 'absurdly' think they have sovereignty over it and must often affirm it by taking advantage even of a gesture of solidarity. But asserting Vietnam's sovereignty over the Spratly and Paracel islands is also an obligation for every citizen of Vietnam. If we do not act to show the world we do not let them freely spread images like this, the European people will no longer respect the maritime sovereignty of Vietnam and we will lose the communication battle.

These examples show the networked structure that activated the mass of pro-Vietnam users who flocked to the posts of the Chinese embassy to express their discontent through comments and reactions. Searching for the most frequent keywords retrieved from the comments and for the URL of the targeted post, it was possible to ascertain that the call for action circulated mostly on March 17, 2020, when most of the comments were published. In the messages shared on the network, it is possible to find the same texts that participants copied and pasted in their comments under the post of the Chinese embassy (e.g., Figure 5).

The inspection of personal profiles of users involved in the firestorm showed that most participants were from Vietnam or, at least, pro-Vietnam. However, users' biographies can be fabricated, making it difficult to distinguish between grassroots protests and astroturfing (Keller et al., 2020). Therefore, interpreting the origin and significance of this event as spontaneous or involving orchestrated action requires caution. However, not labeling an online protest as fake without sufficient evidence is essential to avoid discounting potentially genuine civil voices. The perceived need to differentiate between grassroots and fake sit-ins is often misguided. Various actors, including the government, may participate in the same protests (Starbird et al., 2019), fueling and exploiting grassroots protests driven by authentic nationalistic sentiments. Thus, attributing a digital sit-in or any other coordinated protest to a single category of actors risks oversimplifying the phenomenon, leading to misunderstanding and confusion.

Figure 5. A message published on a Facebook page with about 500,000 followers. It links to the Chinese embassy post and asks users to write a message in English. The message was copied and posted thousands of times under the embassy's Facebook post (compare the message with the comments in Figure 3).



#QĐND/ TRUNG QUỐC LỚI DUNG DỊCH BỆNH ĐỂ TUYÊN TRUYỀN ĐƯỜNG LƯỚI BÒ

Trang Facebook của Đại sứ quán Trung Quốc tại Italy hôm qua đăng bức tranh nhằm thể hiện tinh thần tương thân tương ái giữa hai nước.

Chuyện sẽ không có gì nếu không xuất hiện hình ảnh đường lưỡi bò bên dưới hình bản đồ của Trung Quốc.

Nếu chúng ta không hành động mà để họ thoải mái phát tán những hình ảnh như thế thì tự nhiên hình ảnh đường lưỡi bò sẽ in vào tâm trí các nước ngoài Đông Nam Á, chẳng ai còn tôn trọng chủ quyền của Việt Nam nữa và chúng ta sẽ thua trong cuộc chiến truyền thông.

Tuy nhiên, chúng ta là những người Việt Nam hiền lành, yêu hòa bình nên cách phản đối cũng phải sang trọng, không chửi ngắn gọn như Đông Lào được. Hãy vào bài viết của Đại sứ quán Trung Quốc tại Italy (link bên dưới), đăng bức ảnh tuyên bố chủ quyền của Việt Nam (ảnh bản đồ hoặc bộ kit thử SARS-CoV-2) kèm dòng chữ:

I "We sympathize with Italian and Chinese people during these difficult times and demand Chinense government to respect Vietnamese sovereignty. Vietnam has indisputable sovereignty over Spratly and Paracel islands, we strongly reject any attempt to establish the lillegal nine-dash line".

Link: https://www.facebook.com/chineseembassyitaly/posts/2946436255420152

About the impact of the phenomenon, according to some newspapers (Luận, 2020), the online backlash triggered by the post resulted in a temporary shutdown of the embassy page on the afternoon of March 17. Vietnamese media coverage, however, was not consistently positive (Gamson & Wolfsfeld, 1993). Some news articles reported on the attacks against the young Italian artist who drew the map of Italy, framing them as cyberbullying. She was wrongly accused by some pro-Vietnam protesters of including disputed territories in the map of China despite only drawing the Italian map (the Chinese map was created by a Chinese artist, as mentioned in the post) (Thu, 2020). While Vietnamese news media covered the protest in some articles, Italian and international press remained unaware, resulting in the digital protest failing to create any significant reputational issue (Kim & Ni, 2013). The pro-Vietnam digital sit-in aimed to protest a perceived violation of Vietnamese sovereignty and inform Italian and international citizens. Italian users occasionally expressed gratitude to China in the post's comment section, prompting responses from sit-in participants attempting to correct this positive image of China, often without success and sometimes eliciting annoyed reactions. While the impact on the media and bystanders is crucial, it is not the sole significant

outcome of a digital sit-in. Beyond its effects on China, foreign citizens, and the media, a protest serves the sociological function of fostering solidarity among participants, reinforcing their identity, norms, and values (Melucci et al., 1989). Episodes like this can strengthen identity and nationalist sentiment among the participants. Therefore, while this digital sit-in may not have been very effective in garnering media attention or influencing Italian citizens, it may still have been effective in consolidating nationalist and anti-China solidarity among Vietnamese participants in the protest.

4. Discussion and conclusions

Online firestorms have been primarily studied from a marketing and public relations perspective, focusing on their negative effects on brand reputation. From this perspective, they can emerge rather spontaneously, thanks to the interconnections of social media. However, firestorms can also be forms of coordinated digital protests. Integrating the literature on social media activism and coordinated behavior, the analysis has highlighted the strategic use of online communication to attract attention and synchronize rapid protest actions, which is essential for online firestorms. Drawing from scholarship on coordinated inauthentic behavior and hacktivism, the study showed that online firestorms can arise as intentional, orchestrated, and coordinated actions rather than aggregating independent actions by consumers concerned with the same issue. It showed they can serve multiple sociological functions, including consolidating social solidarity. Moreover, the set of participants in social media firestorms can be heterogeneous and complex to identify, including real people, bots, or centrally controlled fake accounts. This complicates the mitigation strategies proposed by current marketing and public relations literature on firestorms, as approaches to managing angry consumers can be ineffective against political firestorms or bot actions. Contrasting with the current literature's focus on brand reputation and economic impact, this study has also emphasized the importance of media coverage and public attention as central to firestorms when considered as digital protests. The case study empirically exemplified the discussed concepts and highlighted the transnational nature of some social media firestorms, a dimension overlooked in current research.

The literature on online firestorms has primarily emphasized the detrimental aspects of the phenomenon and related preventive measures rather than its functions within social protests (Herhausen et al., 2019; Pfeffer et al., 2014). This approach, however, can be limitedly applied to more politically motivated firestorms. Additionally, brands and consumer choices are also politicized today (Stolle et al., 2005). The presented study highlighted aspects

that can complement the perspective on firestorms emerging from the already significant but specialized literature on online firestorms, primarily concerned with brands criticized by angry customers (Hansen et al., 2018).

Particularly, the study highlighted collective and connective actions facilitated by social media network affordances (Bennett & Segerberg, 2013). While the role of networks is recognized in the existing literature on firestorms (Herhausen et al., 2019), this analysis expanded on them as resources actively exploited for mobilization. The empirical case study further exemplified how activists can intentionally and systematically use networked infrastructures and affordances to spread firestorm protests. Additionally, the reflection on the multifunctional role of patterns of synchronicity and repetitions enabled by social media affordances has been expanded, drawing from the specialized literature on coordinated network analysis. These dimensions are crucial for coordinated behavior detection on social media, where they methodologically exploited to identify coordinated networks statistically (Giglietto, Righetti, Rossi, et al., 2020; Graham, 2020; Righetti & Balluff, 2024). Additionally, this study has observed that a certain degree of synchronicity is likely to emerge from the fast spread of the call for protest through the network, and synchronicity and repetition patterns have a symbolic role in the choreography of digital sit-in protests (Benford & Hunt, 1992; Foster, 2003). The illustrative example showed the almost synchronized reposting of the same content on the targeted social media page. Such repetitive behavior is enabled by affordances that make it possible to copy-paste and is strategically used to lower participation barriers even further by providing users with ready-to-copy messages that can be easily pasted onto targeted posts. This tactic amplifies the protest's visibility and facilitates mass participation with minimal effort.

The crucial role of media attention and publicity in protest actions has been further highlighted (Einwiller et al., 2017). The main aim of social media protests is to amplify protest messages on and beyond digital platforms, thereby influencing public discourse and policy through increased media visibility (Freelon et al., 2016). The empirical example showed the potential for online firestorms to spill over into broader media coverage. However, it additionally showed that this spillover does not always amplify the protest in the way desired by the protesters. The media coverage of the event in Vietnamese news outlets often portrayed the protesters negatively, focusing more on their deviant behaviors than on the objectives of the protest. This aligns with established patterns in the relationship between media and social movements, where coverage tends to emphasize sensational or contentious aspects rather than the underlying causes or goals of the protests (Gamson & Wolfsfeld, 1993).

This study mentioned the theoretically complex composition of firestorm participants, including bots, hybrid accounts, and convergence of actors with

diverse motivations, ranging from government entities to spontaneous users. This mixture potentially creates a hybrid form of protest that blurs the lines between grassroots and astroturfing efforts (Starbird et al., 2019), complicating the understanding of genuine community engagement versus orchestrated campaigns (Keller et al., 2020). Additionally, the variety of actors participating in action has implications for the current literature on firestorms. When tackling the motivations to join firestorms and elaborating on deterrent strategies, current scholarly works mainly mention psychological and sociological factors. However, the suggested strategies can prove ineffective against bot armies. This is a significant limitation in addressing political firestorms, where bot usage and astroturfing can be more prevalent (Keller et al., 2020). This complexity makes it more challenging to effectively address and manage such protest events, as traditional approaches may not adequately account for the automated or semiautomated components. Moreover, the shift in focus from brands to political entities as targets of firestorms adds another layer of complexity, rendering traditional management strategies possibly ineffective or inapplicable. For example, common tactics suggested for mitigating firestorms, such as issuing apologies, showing empathy, or offering compensation to disgruntled customers, are impractical and irrelevant in scenarios like the one we reported. In these cases, firestorms arise from contentious international political positions, differing markedly from consumer-brand interactions. This requires developing new approaches suited to the political context of these protests.

In conclusion, despite its limitations – such as not introducing entirely new theoretical concepts or unprecedented phenomena and focusing on a single case study – this study highlights the nuanced nature of online collective behaviors, using firestorms as an example. It offered a different perspective on their dynamics and implications, emphasizing the need for a nuanced understanding to accurately assess online behaviors' nature, functions, potential impact, and management, as different sociological patterns may be hidden beneath seemingly similar digital traces.

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